

LUMMI NATION SEAFOOD CONSUMPTION STUDY

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FOREWORD

By Tsi'li'xw Bill James, the Lummi Nation's Hereditary Chief
(*Transcription from a conversation with Tsi'li'xw Bill James on April 18, 2012*)

From a historical point of view, seafood is the lifeline of our people. Everything under the water, our people ate during different times of the year. Of course, everything had a name, everything had a place, and everything had a time. Everything was given to us by the Creator (*Xhaels*) to take care of our people.

It is something that the old people used to tell about, when the *Xhaels* and the Changer were walking the earth and created all the animals and birds and plants and trees and whatever. He took the human beings and he was changing the human beings into the animals, and birds, and plants, and fishes and everything like that. So the old time perspective in the words that you would use today is that, everything out there is our brothers and sisters; our relatives. They are there for us because they are part of us, they are who we are.

I always tell the stories that I heard from my Elder about the creation of all the animals, birds, and plants and how they came to be, and that we need to take care of them and they will take care of us. It is still taught; even today, even though it is not written, this is something you do not find in the textbooks, where you see it written, but it is still handed down among families. It is like when we go collect bark in the woods, we give thanks for what we take, we say a special prayer thanking the tree for giving up its bark, and we thank the animals for giving up their life for us. These are the most important things that people understand what our perspective is of the environment and seafood and plants and all the food that we eat.

Today of course, we are all commercial, because that is how we have been taught. We do not eat the traditional foods like we used to or how we should. The volume of people here has changed so drastically – even during my short life. At one time, I could name you every home on the Reservation and everyone who lived in them. Now, I don't even know some of the roads that they live on. Times have changed so much. Teaching about traditional foods can use some help. I can give you an example. One day there was a grandmother who sent the child into the kitchen to get fish sticks. The child did not know the difference between fish sticks that you buy from the store and eat and fish sticks that you cook fish on. Our culture is changing. We try to teach our children survival. What to eat and how to prepare it. Because some day those stores are not going to be there, or the food is going to be too expensive to buy. They need to know the real names of the food – their Native name.

Today, conservation-wise, we try and teach the young people to clean your horse clams out there on the bed, clean your horse clams and put the babies back in the holes. Always put them two babies back in the holes, and you will have more. Nowadays, so many of them go and dig them and take them home and kill the babies. They do not clean them right there. But that was a strong teaching of the old people. Make sure you clean them right there and cover them babies up and you will have twice as much. Little rules of the environment are important.

Seafood is our main lifeline. The Creator (*Xhaels*) was walking on the earth one day changing the human beings. One particular day, the Creator was going along and he was

watching all these people – they were gossiping and gossiping. “Did you hear about so and so? he said, she said; did you know that so and so...?” They were busy gossiping all of the time. The Creator got angry, “Come on, come on, all of you folks come on!” He took them down to the beach when the tide was low. He told them, “You stay here.” The people sank in the mud out there. They went down under the water when the tide came in. He worked on them, and he sang, and he changed them. He changed them into *Soxwe*, the butter clams and *Swam* (horse clams) and all of the different clams. All the different people became the different clams. That is why they are underneath the water. The first thing you see when you see the tide go out, what do they do? “Psst – did you hear about so and so?” they are still trying to gossip out there, they are spitting out their water. Little stories that the old people had – a story about how everything was created. They need to be shared more with the people.

The teachings were real strict about the giving of food. One day we only had one fish in the smokehouse, just one fish hanging up. We had it smoked for three days and so I felt, well, my grandaunt and uncle, I would cut it in half and give them half and we would have half. I got there to my granduncle’s house and he looked at me kind of funny. “When did you ever see half a fish going up the river?” he says. You learn a lesson, a little lesson that it is a little hard to think about for a while.

Our people used to gather together years ago. They would gather butter clams, mussels, oysters, cockles, and crabs, and everything and cook them all on the beach. Everywhere our people gathered you see the middens. The middens are white from the oysters and blue from the mussels. You see where they had the clam bakes. Big gatherings a long time ago. They all would come and would cook them over the fire covered with seaweed. They would feed all the people that would come. Our people don’t do that anymore.

We used to live down by the fishing village years ago. The boys used to bring sacks and sacks of crab. They would wade for them with bare feet. They would take those great big galvanized bath tubs you know from years ago. They would fill them with the crabs and cover them with seaweed and steam them. Then they would call out, “The crabs are ready, the crabs are ready!” You do not see things like that anymore where people just come together.

There is lots to talk about with the seafood and the environment and conservation and protection of. Our old people were very serious about conservation. Our old people had a season for everything. We were told to protect everything on Mother Earth.

Up at the river there they used to fish. The season would open Sunday night at 4:00 and close Friday night at 4:00. Continuously all year long, all year long they would do that. We used to sit there at the river and we’d watch. At 4:00 on Friday, when the season closed, you could just see the fish just go up the river. They waited until 4:00 on Friday before they’d go up the river. We knew it. It was an unspoken rule. There was one officer I guess you would call him; he was never there but everyone abided by the rules – that was all there was to it.

Nowadays we have so many people and we do have a lot of inter-marriages with different values that are coming. And that makes it hard to protect our cultural values as to who we are. Changes in life. Everything is changing, everything is changing, everything is changing. That is all we can say. Everything is changing.

We are going to talk a little bit about pollution first of all, and toxins and everything that is in our water now. We know where a lot of it comes from; a lot of it does come from the river. A lot of chemicals today come from the boats, from the big boats that are going by and the oil. I often wonder where does the sewage from the boats go. What effect does that have on our environment?

You know our old people were conscious of pollutants, like for example, the *Soxwe* the butter clams. You had to cut that black nose off because the pollutants are all in the black part of the nose, you have to cut it off, every time they are all cut off, you don't eat that part. If you cut the noses off and clean the bellies out of the clams you can eat them.

Years ago, when I was 8 or 10 I guess, it used to be that pea vines were dumped into the Nooksack River at one time. The boys used to fish with pea vines in the river. Just slimy gobs of pea vines in the river, coming down the river. It coated the bottom of the river – it would be an inch and a half thick on the bottom. We used to slide on it on the sand bar when we were swimming. We would just go jump on it and slide since it was slippery, we would just roll in it and get coated in it. But the fish had it in their gills – what effect did that have on our salmon runs? How many fish did it kill during that pea vine time?

We talk pollution but we also need to talk water, and the quantity of the water. The River first of all, there is about only one-third of the water left in the river than what it should be – from my day only. There is only about one-third of what it used to be. We used to jump off the bridge to swim – dive in off the big bridge down there. It used to be what, 27 meshes deep for the nets in the river – now it is what, 4 meshes? It is only just that deep now. The change is drastic in the River. As I drive up to the mountains and I look at all of the farms that are irrigating from the river now. I see all of the raspberries farms and blueberries farms that are irrigating from the River. That is taking our water, that is taking our food, that is taking our lifeline. But, they don't care. They are going to worry one day when they are not going to have enough water to drink. When the farmers take all of their water from the drinking supplies, then they are going to wonder where it went.

I used to listen to my granduncle talk about the herring spawn right up into Bellingham, right in Bellingham up there, and how the herring spawn used to be right where the harbor is. Herring spawned all along there. Everything, like the eel grass and everything nowadays where our people used to fish years ago. I think part of it is that some of the old landmark fishing places are forgotten. The young people don't know where they are. You hear them talk about fishing by the buoy, down that end, and down from this for halibut. I don't think our young men know where they are supposed to fish – they never listened to the old-timers where they used to catch halibut – they never heard those stories. There is a generation gap in there. Not knowing the traditional sites of fishing and gathering of actually all the materials, all of the foods.

I could tell you lots of other stories, there are different stories, I could keep you here for a month telling you different stories. There is the story of the Salmon Woman – it teaches that everything is a gift, everything is a gift and we have to take care of it.

Pollution is really going to be the key in the future. How do we protect ourselves from it. We are only a few people, we are only a few people compared to all the people out there. We are fighting people that are bigger than us, richer than us. We are a minority. You know probably what is going to happen. Just like we go into the woods to gather our materials, our

medicines, and plants and stuff as we go up there. People are destroying everything up there. Clear cutting everything. We found this beautiful stand of cedars, just that big and just as high as a telephone pole with no limbs on it, just straight as an arrow, just beautiful. It was getting to be dark so we had to go home. We will go back next weekend. We went back the next weekend and 20-acres had been logged right to the ground, just flattened to the ground. All we can do is cry, all we can do is cry, it is all gone, every bit of it was gone.

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EXECUTIVE SUMMARY

The purpose of the Lummi Seafood Consumption Study is to reliably estimate the seafood consumption rate for Lummi Indians living on the Lummi Indian Reservation and in surrounding areas of northwestern Washington State.

The Lummi Nation seafood consumption rate determined from this study will be used for a number of purposes including to support the development of water quality standards for both the Lummi Nation and the State of Washington and to support a reliable risk assessment for Lummi tribal members in the evaluation of clean-up options for contaminated sites along Bellingham Bay.

The survey instrument used in the study was developed by Lummi Natural Resources Department staff with the support of a Technical Advisory Committee and a Tribal Advisory Committee and further refined based on the results from test interviews. The survey instrument listed 54 species of seafood with questions about the amount, seasonality, and frequency of consumption for each species. Additionally, separate information about seafood consumption at home and at community gatherings, demographic information, and information about fishing activity and consumption patterns was recorded during interviews of study participants. The questionnaire was administered by three interviewers, who used scaled portion model photographs and seafood identification booklets as aids in the interviews.

All participants signed a consent agreement before the interview and were paid a \$25 honorarium at completion of the interview.

The environmental baseline chosen for the Lummi Seafood Consumption Study was 1985, as this was the peak fish harvest year for the Lummi Nation in recent history and a goal of the Lummi Natural Resources Department is to restore fish habitat so that at least the 1985 harvest levels can be sustained. As a result, the Tribal Advisory Committee determined that fish consumption rates from 1985 should be used to develop water quality standards and to support risk assessments of clean-up options for contaminated sites along Bellingham Bay. While not at Treaty-time levels, seafood abundance and availability was less of a limiting factor for seafood consumption during 1985 than in 2012. Consequently, the seafood consumption rate would be less suppressed due to environmental degradation or the lack of available fish. A literature review showed that appropriate data could be elicited in recall studies that reach back 25 years.

Consistent with the Environmental Protection Agency (EPA) guidance to use consumption rates that adequately protect the most highly exposed populations when developing water quality criteria (EPA 2000), a sample pool of enrolled Lummi tribal members who could be expected to be high seafood consumers was chosen for the study. Based on the seafood consumption survey results from other Puget Sound tribal communities, the selected sample pool consisted of enrolled Lummi Nation members who were male, 45 years and older in 2010, and living on the Lummi Indian Reservation or in the surrounding Whatcom County.

A custom Microsoft Access database was developed simultaneously with the survey instrument. The Lummi Seafood Consumption Study database was used to calculate the total

amount of seafood consumed for each individual during one year based on the survey responses. The results were then used to compute daily seafood consumption rates.

Eighty-two (82) participants were interviewed over the May 2011 through March 2012 survey period. Outliers were removed before the final calculation, which reduced the overall sample size used to compute the daily seafood consumption rate to 73 respondents. Outliers were defined by the Tribal Advisory Committee as respondents who reported consumption rates above the 90th percentile of the daily seafood consumption rate of all respondents. The resultant average Lummi seafood consumption rate was calculated to be 4.73 grams per kilogram per day (g/kg/day) or approximately 383 grams per day (g/day) (0.84 pounds per day [lb/day] or 13.5 ounces per day [oz/day]) for all seafood consumed; the median seafood consumption rate was calculated to be 3.82 g/kg/day or approximately 314 g/day (0.69 lb/day or 11 oz/day); the 90th percentile seafood consumption rate was calculated to be 10.03 g/kg/day or approximately 800 g/day (1.76 lb/day or 28.2 oz/day); and the 95th percentile seafood consumption rate was calculated to be 11.28 g/kg/day or approximately 918 g/day (2.02 lb/day or 32.4 oz/day). The final precision of the survey was ± 16.5 percent.

1. INTRODUCTION

1.1. Study Purpose

The purpose of the Lummi Seafood Consumption Study is to reliably estimate the seafood consumption rate for Lummi Indians living on the Lummi Indian Reservation and in surrounding areas of northwestern Washington State.

It is anticipated that the Lummi Nation seafood consumption rates determined from this study will be used for a number of purposes including to support the development of water quality standards for both the Lummi Nation and the State of Washington and to support a reliable risk assessment for Lummi tribal members in the evaluation of clean-up options for contaminated sites along Bellingham Bay.

1.2. Lummi Nation Profile

The Lummi Tribe of the Lummi Reservation is a federally recognized Indian tribe (75 FR 60810). The Lummi People have lived along the shores of the Pacific Northwest since time immemorial. The 1855 Treaty of Point Elliot established the Lummi Indian Reservation within the traditional territory of the Lummi People and reserved the inherent rights of the Lummi People to hunt, fish, and gather throughout their traditional territories and their usual and accustomed grounds and stations.

The Lummi Indian Reservation (Reservation) is located in northwestern Washington State approximately 75 miles north of Seattle and approximately 13 miles south of the Canadian border (Figure 1.1). The Reservation is comprised of approximately 13,000 acres of upland and approximately 7,000 acres of resource-rich tidelands (LNR 2010). These tidelands, adjacent marine and fresh waters, and the tidelands and marine and fresh waters throughout the Lummi Nation's usual and accustomed grounds and stations (U&A) are relied on by the Lummi People for finfish and shellfish (collectively "fish" or "seafood") that are used for commercial, ceremonial, and subsistence purposes (Suttles 1951). The Lummi Nation's U&A extends from the Fraser River to the environs of Seattle (Figure 1.2). A common expression among northwest Indian tribes reflects the abundance of seafood and reliance of aboriginal peoples on seafood: "When the tide is out, the table is set."

The Lummi Nation is a fishing tribe. Lummi tribal members operate the largest tribal fishing fleet in the Puget Sound area with currently over 300 registered vessels ranging in size from skiffs to gill netters. Finfish and shellfish are harvested by Lummi tribal members for commercial, ceremonial, and subsistence purposes. As shown in Figure 1.3, Lummi tribal members commercially harvest more salmon, other finfish, bivalves, and other invertebrates (e.g., Dungeness crab) than all other Puget Sound Indian tribes combined (Tribal Online Catch Accounting System [TOCAS] 2012).

Fish consumption is integral to the Lummi *Sche lang en* ("way of life") and was undoubtedly the primary food source prior to contact with euro-Americans and at the time that the Point Elliot Treaty was signed during the mid-1800s (Suttles 1951, Hewes 1973). Among the findings of fact in his opinion in *U.S. v. Washington* (*U.S. v. Washington*, 384 F. Supp. 312, 380 [W.D. Wash. 1974]), Judge Boldt stated, "Salmon, however, both fresh and cured, was a

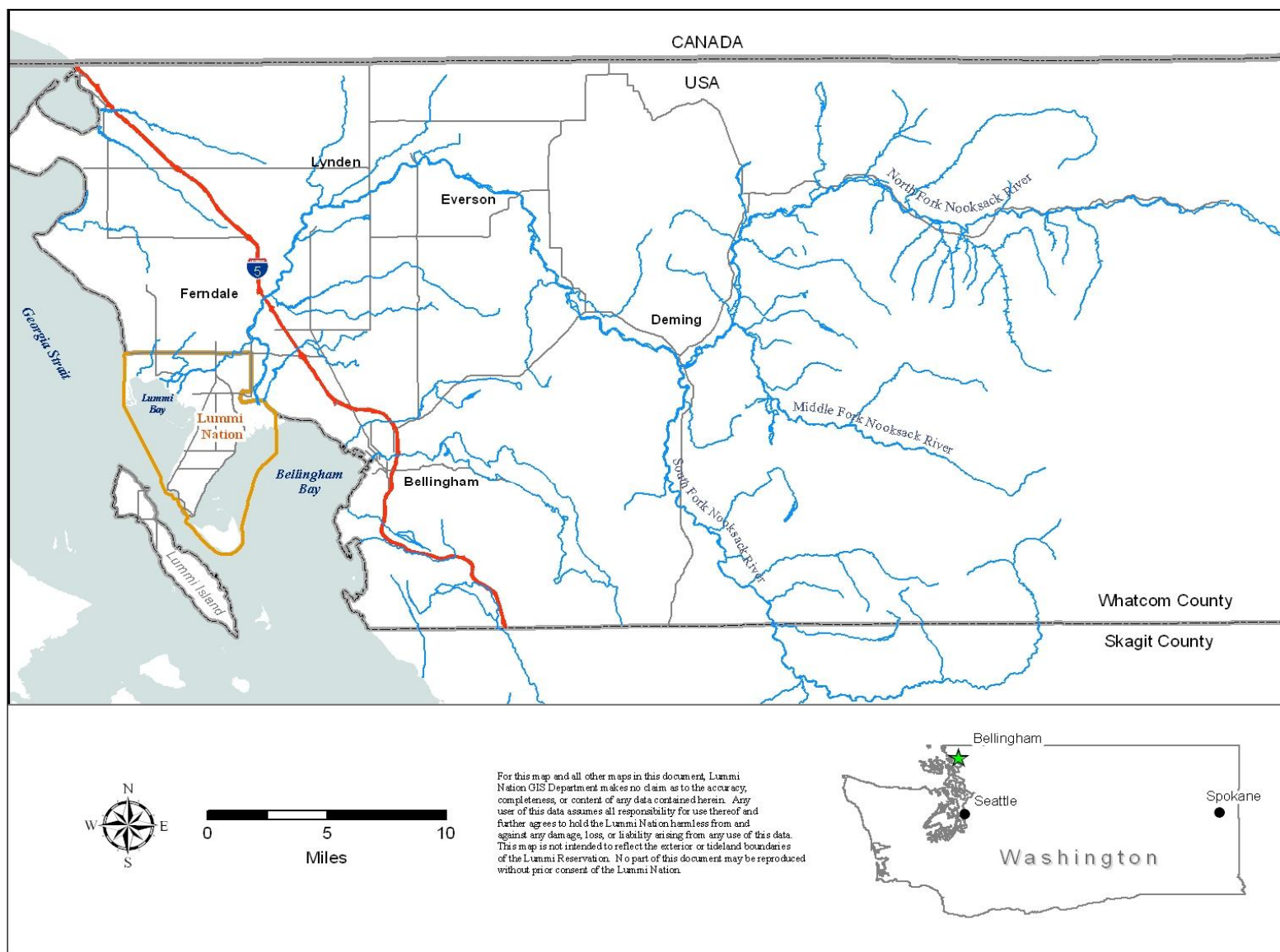


Figure 1.1 Location of the Lummi Indian Reservation

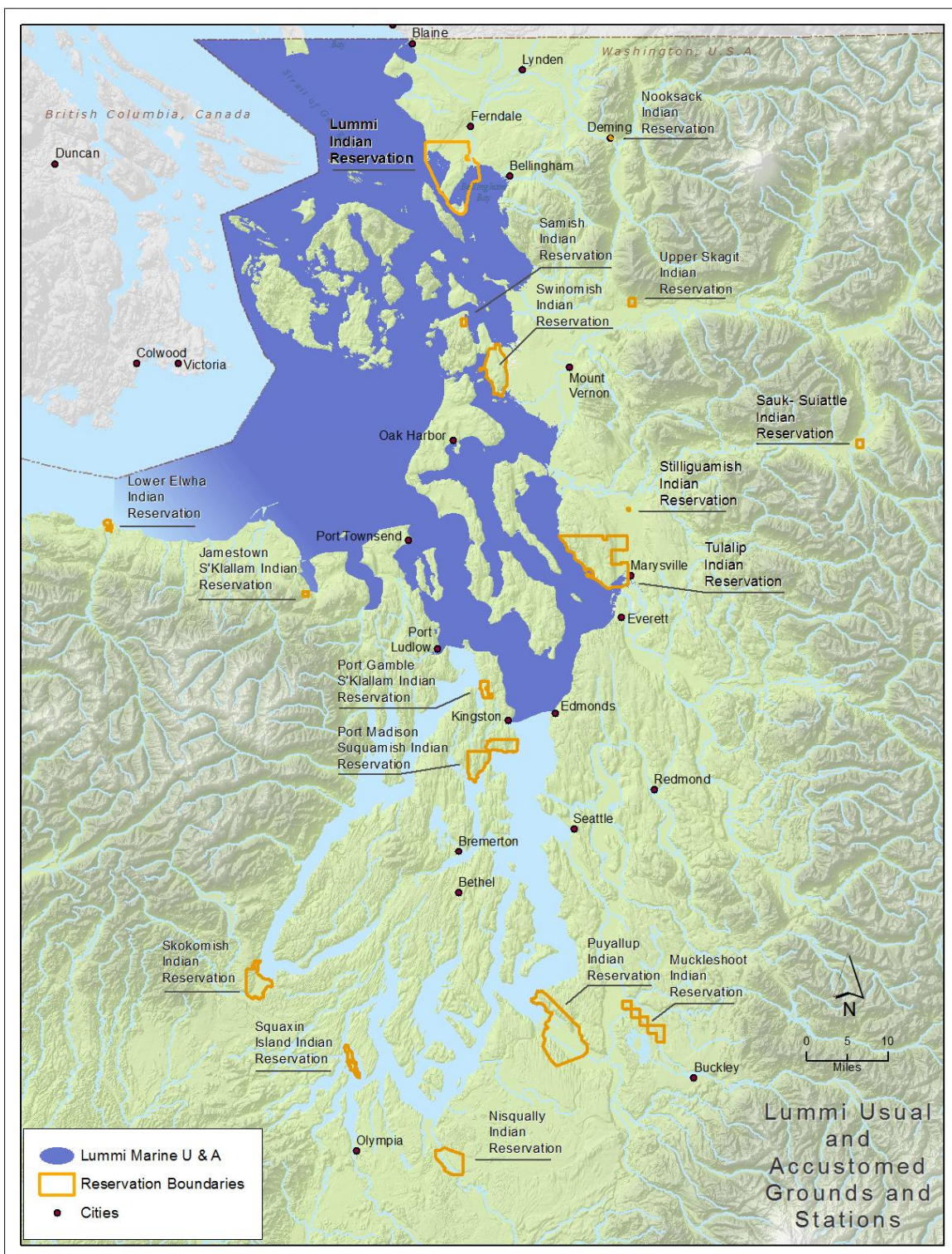


Figure 1.2 Lummi Nation Usual and Accustomed Grounds and Stations

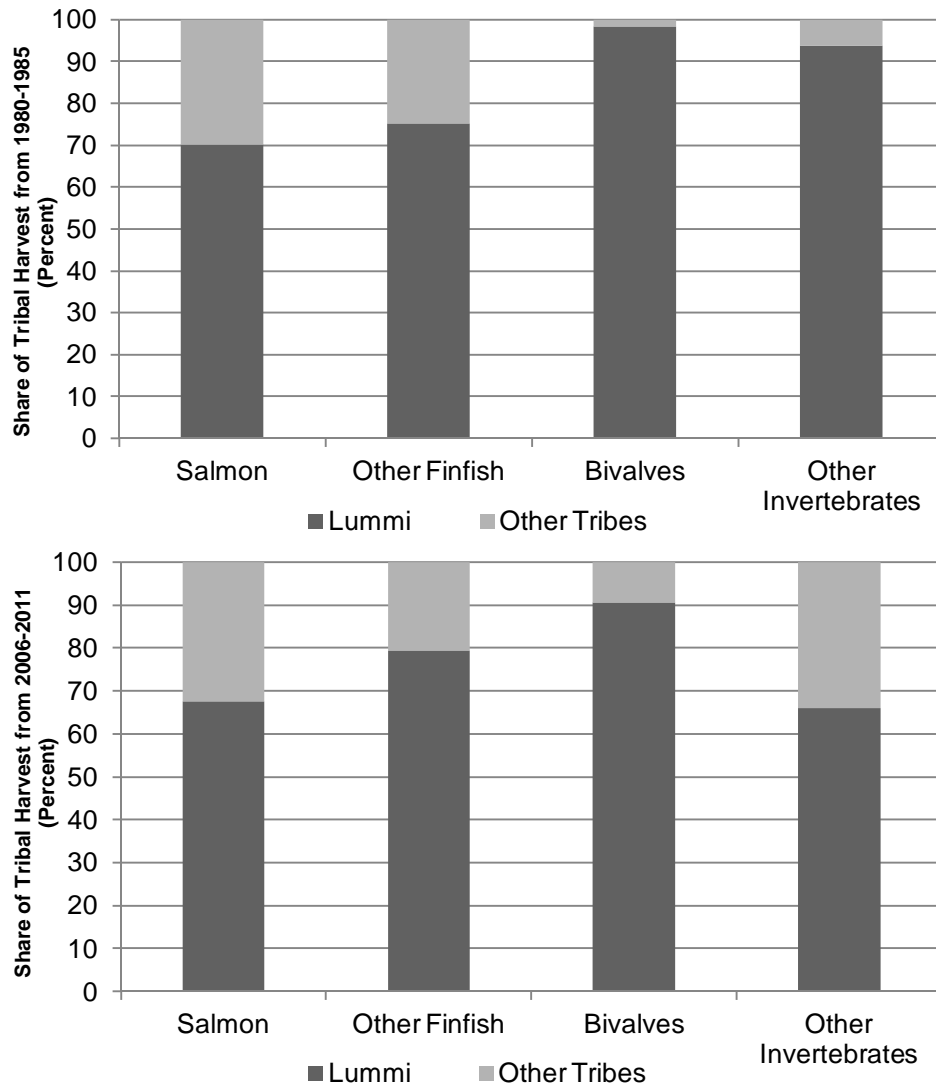


Figure 1.3 Lummi Share of Tribal Commercial Fisheries During 1980-1985 and 2006-2011

staple in the food supply of these Indians. It was annually consumed by these Indians in the neighborhood of 500 pounds per capita.” A consumption rate of 500 pounds per capita per year equates 621.4 grams/day.

The Lummi Enrollment Office reports that in 2011 there were approximately 4,650 enrolled Lummi tribal members (Kamkoff 2011). The 2010 Census reported that the total Reservation population was 4,706 people; 2,643 (56.2 percent) of these people identified themselves as American Indian and Alaska Native (Indian) alone or in combination with one or more other races (Census 2010).

The Lummi Nation is governed by the elected eleven-member Lummi Indian Business Council (LIBC) and the General Council consisting of all enrolled members over the age of 18. The LIBC is the legislative branch of the Lummi government, which is also comprised of a judicial branch and an administrative branch. The administrative branch is comprised of numerous departments including the Lummi Natural Resources Department (LNR). The LNR is organized

into several divisions, including the Water Resources Division, which was assigned to conduct the Lummi Seafood Consumption Study.

1.3. Water Quality Standards and Seafood Consumption Rates

Water quality standards are intended to protect public health and welfare, enhance water quality, and serve the purposes of the Clean Water Act (CWA) by facilitating the protection of natural resources and recreation in and on the water. In summary, water quality standards are intended to achieve the “fishable/swimmable” goals of the CWA.

Pursuant to Section 518 of the CWA, the Lummi Nation applied to the Environmental Protection Agency (EPA) for eligibility to administer the water quality standards program in March 1995. The application is a two-part process. The first part includes the determination of the eligibility of a tribe to administer the program; the second part consists of the development and adoption of water quality standards by the tribe and the approval of the tribal water quality standards by the EPA. The application process is rigorous and time consuming. The EPA determined the Lummi Nation’s eligibility to administer the water quality standards program in March 2007. The Lummi tribal water quality standards were approved by the Lummi Nation in August 2007 and by the EPA in September 2008.

Ingesting seafood that is contaminated through polluted water or sediment is a primary exposure pathway for toxins for Lummi tribal members. Seafood consumption rates are used to develop human health-based water quality criteria and to calculate the risk (cancer and non-cancer effects) posed by exposure to chemical contaminants. In a simplified form this relationship can be expressed as: $\text{Risk} = \text{Exposure} \times \text{Toxicity}$. The seafood consumption rate reflects exposure in the simplified risk equation. The higher the exposure of a population, the lower the toxic substance concentration (toxicity) must be to result in the same risk.

In 2007, the Lummi Nation used a fish consumption rate of 142.4 g/day to calculate the toxic substance criteria in the development of the Lummi Nation water quality standards. This value was recommended by the EPA (EPA 2000, EPA 2002) as a default value for subsistence communities. This consumption rate was used because a Lummi-specific fish consumption survey was not available at the time and the 6.5 g/day fish consumption rate used by Washington State to develop the Washington Water Quality Standards is not aligned with observed fish consumption rates of Lummi tribal members or other existing tribal fish consumption studies.

The required triennial review of the Lummi water quality standards, which was to start in October 2011 but is delayed pending the results of this study, will provide the opportunity to revise the Lummi water quality standards to incorporate a Lummi-specific seafood consumption rate. The Washington State water quality standards and sediment management standards are both also under review at this time and the new data will be used to ensure that the toxic substance criteria adopted by Washington State are more protective of the health of tribal members. Like most Puget Sound Indian reservations, the Lummi Reservation is located along a marine shoreline and is at the downstream end of the surrounding watersheds. Because state and tribal waters intermingle, and portions of the Lummi Nation’s usual and accustomed grounds and stations (U&A) are located along and within state waters, the Washington State water quality and sediment clean-up standards affect the exposure of tribal members to toxins.

1.4. Seafood Consumption Rates and Waste Clean-up Risk Assessment

In addition to updating water quality standards, the Lummi-specific seafood consumption rate is intended to be used in evaluating the public health implications of proposed plans to clean up 14 contaminated sites within and along Bellingham Bay.

The Washington State Model Toxics Control Act process (MTCA – Washington State’s equivalent to the federal Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA], also known as the “Superfund” program) for Bellingham Bay was initiated through the Bellingham Bay Demonstration Pilot Project (Bellingham Bay Pilot) in 1996. The purpose of the Bellingham Bay Pilot was to develop a cooperative approach to expedited sediment clean-up, source control, and habitat restoration within Bellingham Bay and along the shoreline. The Bellingham Bay Pilot Team (Pilot Team) was created in 1996 and includes representatives from 15 federal, tribal, and state agencies including the Lummi Nation. The Pilot Team worked for over 10 years on coordinated clean-up, source control, and habitat restoration planning for the 14 known contaminated sites in Bellingham Bay and included substantial community involvement and public outreach activities. A comprehensive strategy was finalized in a 2000 Remedial Investigation/Feasibility Study (RI/FS) report and an Environmental Impact Statement. Since 2000, the Georgia-Pacific pulp mill and associated chemical plant closed, and 137 acres of waterfront property (the former mill and chemical plant site) were sold to the Port of Bellingham. This 137-acre former industrial and commercial site and other historically industrial and commercial sites along Bellingham Bay that are being considered for future mixed land uses and that will be affected by the environmental contamination, are considered “brownfields”.

Similar to the exposure calculation for the establishment of water quality standards, seafood consumption rates are used to calculate human health risks associated with sediment quality standards that are among the factors that affect clean-up decisions at MTCA sites.

1.5. Existing Seafood Consumption Information

There have been a number of other studies of contemporary seafood consumption rates conducted for different populations in the United States. These studies can be grouped into studies of the general population and studies of sub-populations (e.g., Native American tribes and Asian and Pacific Islanders).

1.5.1. Federal and State Consumption Rates

In 1980, the EPA identified a national average consumption rate of 6.5 g/day of seafood from estuarine and freshwaters for an average adult weighing 70 kg (Javitz 1980). This average consumption rate was based on the mean per capita consumption rate including consumers and non-consumers of freshwater and estuarine finfish and shellfish and was derived from three-day diary results for the 1973-74 National Purchase Diary Survey (Javitz 1980).

In 2000, the ambient water quality criteria (AWQC) human health methodology was revised to include a tiered approach to consumption rates (EPA 2000, EPA 2002a). The EPA recommended a seafood consumption rate of 17.5 g/day for the general adult population and 142.4 g/day for subsistence type communities. These consumption rates were derived from the

USDA 1994-96 Continuing Survey of Food Intake by Individuals. The higher consumption rates represent the 90th and 99th percentile respectively of a study of the general population, which included consumers and non-consumers of seafood, for freshwater and estuarine fish only. For site clean-up projects under the Resource Conservation and Recovery Act (RCRA) and the CERCLA, the EPA recommends a default value of 215.7 g/day if local surveys are inappropriate to use because of differences in site habitat or consumption patterns (EPA 2007). For tribes that reside in current or potential high-quality shellfish habitat areas, the EPA Region 10 recommends using a consumption rate of 766.8 g/day (EPA 2007) based on the consumption data for the Suquamish Tribe (Suquamish 2000). For tribes at other sites, the consumption rate of 194 g/day derived by the EPA from data from the Tulalip Tribes (Toy et al. 1996) may be used as the basis for the tribal fish and shellfish consumption rate.

Washington State water quality standards are currently based on a 6.5 g/day consumption rate. This consumption rate is equivalent to approximately half of a “fish stick” per day. The Washington State sediment quality standard for MCTA clean-up sites is currently 54 g/day.

In June 2011, following a five-year process that included the EPA not approving an earlier and lower proposed seafood consumption rate, the state of Oregon adopted new water quality standards based on a fish consumption rate of 175 g/ day.

1.5.2. Tribal and Other Subpopulation Contemporary Consumption Rates

The EPA encourages states and tribes to use regional or local consumption studies to adequately protect the most highly exposed populations when developing water quality criteria (EPA 2000). In the case of CERCLA and RCRA clean-up projects, the EPA framework also prefers local consumption rate values over default values (EPA 2007).

Seafood consumption surveys of other regional Indian tribes and other subpopulations have been conducted in Washington and Oregon. These studies of contemporary seafood consumption rates include the following:

- A Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin (Columbia River Inter-Tribal Fish Commission [CRITFC] 1994).
- A Fish Consumption Survey of the Tulalip and Squaxin Island Tribes of the Puget Sound Region (Toy et al. 1996).
- Asian and Pacific Islander Seafood Consumption Study in King County, WA (Sechena et al. 1999, Sechena et al. 2003).
- Fish Consumption Survey of the Suquamish Indian Tribe of the Port Madison Indian Reservation, Puget Sound Region (Suquamish 2000).
- Swinomish Fish Consumption Survey, in progress.

As shown in

Table 1.1, the results from these seafood consumption surveys vary greatly and emphasize the need for Lummi-specific data.

Table 1.1 Seafood Consumption Rates for Different Local Populations

Tribe/Population	Mean (g/day)	Median (g/day)	90 th Percentile (g/day)	Mean (g/kg/day)	Median (g/kg/day)	90 th Percentile (g/kg/day)	Average Weight (kg)
CRITFC	63.2	~30	97.2-130	n/a	n/a	n/a	per person
Tulalip	72.68	45.13	201.60	0.89	0.55	2.47	81.75
Squaxin Island	72.96	42.91	192.25	0.89	0.52	2.35	81.88
Asian and Pacific Islanders	117.20	89.00	242.00	1.89	1.44	3.90	62
Suquamish	213.85	132.09	489.01	2.707	1.672	6.19	79

1.6. Lummi-Specific Study

Because of the commercial, ceremonial, and subsistence importance of seafood to the Lummi *Sche lan gen* (“Way of Life”), Lummi tribal members eat considerably more seafood than the average U.S. population. Consequently, the estimates for seafood consumption from national surveys that are recommended for use by the EPA are not applicable to the Lummi Nation. The Lummi Seafood Consumption Study was conducted by the Lummi Natural Resources Department (LNR) to identify seafood consumption rates protective of Lummi consumers.

The study was developed by LNR staff, a Technical Advisory Committee, and a Tribal Advisory Committee to collect and evaluate data about seafood consumption by enrolled Lummi tribal members. Seafood consumed by Lummi tribal members is mostly harvested by Lummi tribal members and distributed among families. Seafood is very rarely purchased from a store by Lummi tribal members and the cycle of commercial, ceremonial, and subsistence fisheries openings for Chinook salmon, coho salmon, sockeye salmon, pink salmon, halibut, crab, clams and oysters, geoducks, sea urchins, sea cucumbers, and other species determine the rhythm of life in the community. In contrast to the general American population, Lummi tribal members usually utilize the entire fish including eyes and eggs. The different salmon species are each prepared according to their specific qualities which make them more appropriate for, for example smoking over barbequing or canning over freezing. Large amounts of seafood are preserved by smoking, canning, and freezing so that seafood is available throughout the entire year. Seafood is also consumed during frequent community or ceremonial events, such as elder lunches, funerals, and naming ceremonies. The return of the first early-run (aka spring) Chinook salmon is annually celebrated by the First Salmon Ceremony.

As the National Environmental Justice Advisory Council states (NEJAC 2002):

For the fishing peoples of the Pacific Northwest, for example, fish and fishing are necessary for survival as a people – they are vital as a matter of cultural flourishing and self-determination.

1.7. Environmental Baseline

The seafood consumption rate is part of the environmental baseline used for the development of water quality standards and for the risk assessment of clean-up/restoration projects. For environmental assessments, current conditions are commonly used as the baseline to evaluate the impacts of proposed projects. However, current conditions are typically degraded from historic environmental conditions due to the effects of a number of human activities including mining, timber harvesting, agriculture, transportation system development, and industrial development (Hewes 1973, Donatuto and Harper 2008). For example, in northeast Bellingham Bay approximately 750 acres of intertidal lands have been filled, dredged, or armored to develop marinas and industrial lands; these industrial land uses have also contributed to the contamination of the bay through the discharge of mercury and other toxins. Similarly, current seafood consumption rates are typically depressed compared to historic consumption rates due to a variety of factors including shoreline modifications and structures that preclude access to traditional harvest areas, environmental degradation and contamination that prevents harvest, reduced abundance, and alternative food choices (Harper and Harris 2004, Donatuto and Harper 2008). Adopting current conditions as the environmental baseline is not protective of tribal Treaty rights, cultural sovereignty, or tribal interests that include the promotion of the traditional diet and the recovery of salmon and shellfish populations.

The NEJAC describes suppression and its consequences in the report Fish Consumption and Environmental Justice (NEJAC 2002):

A suppression effect occurs when a fish consumption rate for a given subpopulation reflects a current level of consumption that is artificially diminished from an appropriate baseline level of consumption for that subpopulation. The more robust baseline level of consumption is “suppressed,” inasmuch as it does not get captured by the fish consumption rate. Suppression effects may arise as a result of contaminated aquatic ecosystems, depleted aquatic ecosystems and fisheries, or both. When agencies set environmental standards using a fish consumption rate based upon an artificially diminished consumption level, they may set in motion a downward spiral whereby the resulting standards permit further contamination and/or depletion of the fish and aquatic resources.

The reduction in seafood availability significantly progressed even in the last three decades and is well documented through the catch data for the Lummi fishing fleet from 1980 through 2011. Figure 1.4 shows the total pounds of all seafood commercially harvested for the Lummi Nation fishing fleet and other tribes in the Puget Sound area (Tribal Online Catch Accounting System [TOCAS] 2012) during this time period. The average commercial catch reported by the Lummi fleet over the 1980 through 2011 period was approximately 5.3 million pounds whereas during 1985 the Lummi fleet reported a commercial catch totaling over 14.6 million pounds.

Table 1.2 and Figure 1.4 summarize the dramatic changes between the 1980 to 1985 period and the 2006 to 2011 period. The total amount of salmon harvested over the 2006 to 2011 period was 49 percent less than the total salmon harvest over the 1980 to 1985 period. The harvest of other finfish, particularly herring, decreased by 82 percent between the two 5-year periods. The loss or reduction of a fishery increases the importance of the other fisheries to the Lummi economy. As shown in Table 1.2, the harvest of bivalves and other invertebrates, particularly Dungeness crab, has increased by approximately 95 percent during the 2006 to 2011 period in comparison to the 1980 to 1985 period.

The environmental baseline chosen for the Lummi Seafood Consumption Study is 1985, as this was the peak fish harvest year for the Lummi Nation in recent history and a goal of the Lummi Natural Resources Department is to restore fish habitat so that at least the 1985 harvest levels can be sustained. As a result, the Tribal Advisory Committee determined that fish consumption rates from 1985 should be used to develop water quality standards and to support risk assessments of clean-up options for contaminated sites along Bellingham Bay.

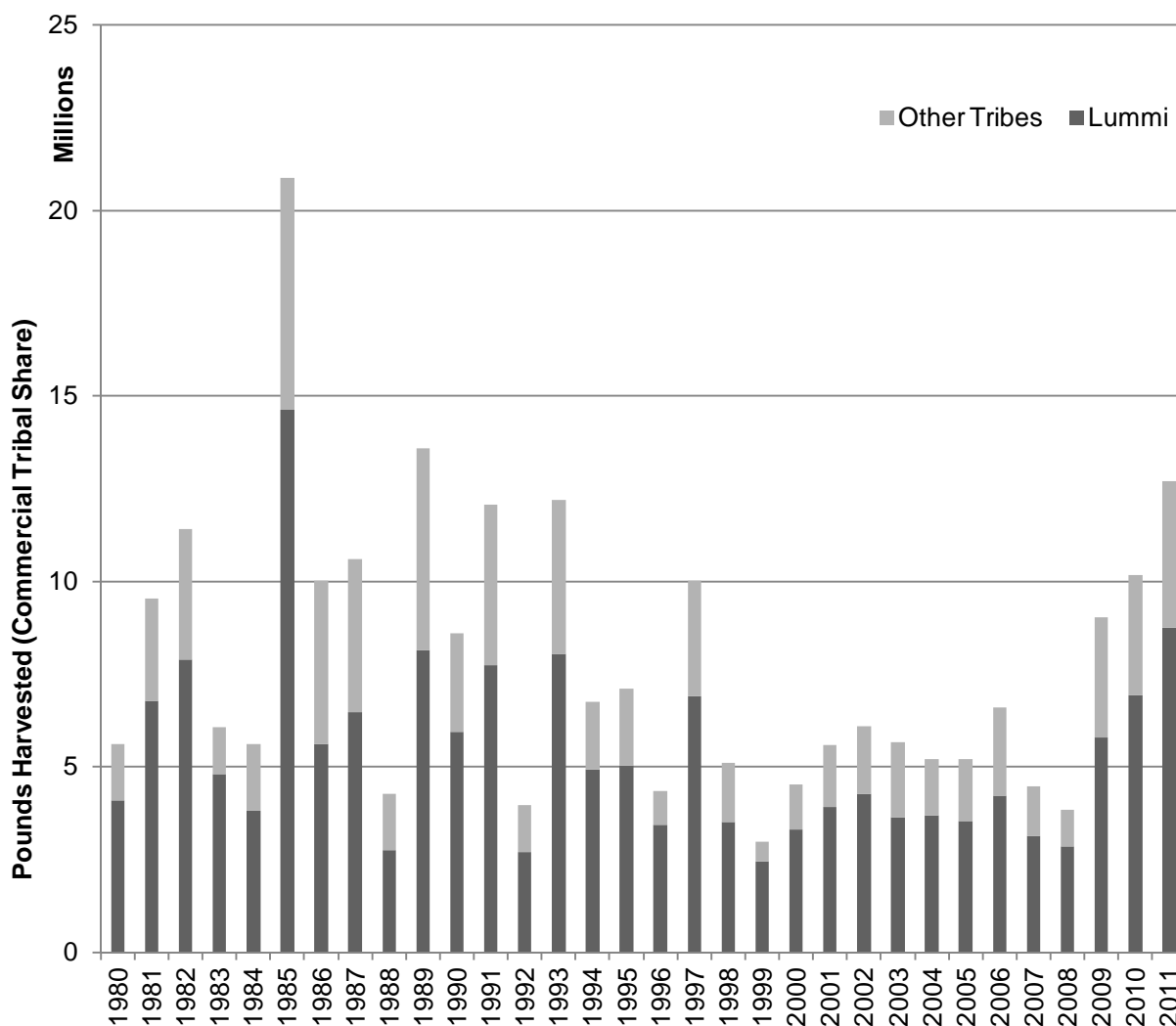
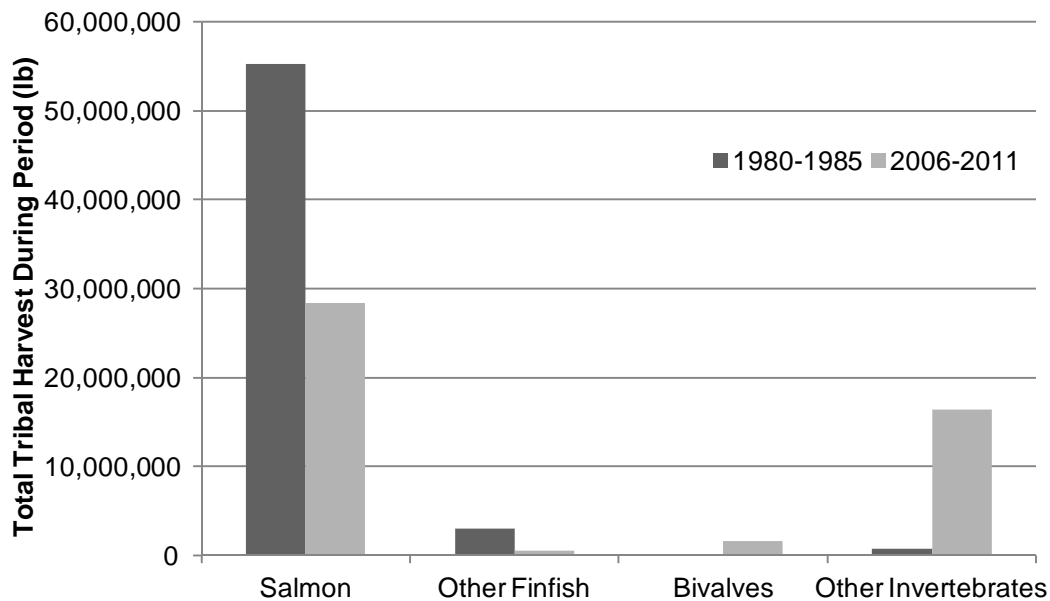


Figure 1.4 Total Pounds Harvested Seafood (Commercial Tribal Share) 1980 to 2011

Table 1.2 Lummi Seafood Commercial Harvest during 1980-1985 and 2006-2011

Harvest Period	Fish Harvests (lb)			
	Salmon	Other Finfish	Bivalves	Other Invertebrates
1980-1985	55,202,299	3,075,360	104,026	744,982
2006-2011	28,330,427	559,920	1,583,434	16,355,955
Percent Difference	-49%	-82%	+94%	+96%

**Figure 1.5 Lummi Commercial Seafood Harvest during 1980-1985 and 2006-2011**

After the mid-1980's several known factors adversely impacted the Lummi Nation's consumption of fish and shellfish. The following paragraphs summarize these conditions.

The numbers of sockeye salmon that returned to the Usual and Accustomed fishing grounds (U&A) of the Lummi Nation during 1999, 2007, and 2009 were so low that the sockeye salmon fisheries were canceled entirely during those years. The effects of these fishing disasters cascade into subsequent years, because fishers cannot invest in their equipment. As a result, only part of the fleet could take advantage of the record sockeye returns during 2010.

At its peak in the mid-1980s, the Lummi fishing industry employed approximately 2,000 Lummi members. In the 15-year period between 1995 and 2010, there were on average 624 fishing registrations per year. There are currently over 300 vessels registered with the Lummi Nation

The shellfish harvest on the Reservation was also impacted during the 1996 through 2006 period. Elevated fecal coliform bacteria levels in the waters of the Nooksack River, which were largely attributed to poor dairy waste management practices in the Nooksack River watershed (DOH 1997), led to the closure of 60 acres of tribal tidelands in Portage Bay in 1996 and 120 additional

acres in 1997. Not considering the multiplier effects on the economy, the lost value of the shellfish products alone was estimated to be approximately \$825,000 per year. In response to the 1996 shellfish bed closure, the EPA conducted compliance enforcement inspections of dairy operations in the Nooksack River watershed starting in 1997. In 1998, the State of Washington passed the Dairy Nutrient Management Act (RCW 90.64), which required dairy farmers to develop and implement nutrient management plans (“farm plans”). As a result of these reactions, approximately \$8.5 million in technical assistance to dairy producers, and additional compliance inspections by the Washington Department of Ecology, water quality in the Nooksack River improved. In November 2003, approximately 75 percent of the previously closed shellfish beds in Portage Bay were reopened to commercial harvest. In May 2006, the remaining closed shellfish growing areas were reclassified as “approved” for harvest.

Due to the availability of seafood to the Lummi community, 1985 was judged by the Study Team to be a more appropriate environmental baseline than recent years. While the consumption rates for 1985 are not comparable to the heritage rates at the time of the treaty in the 1800s and the rates of the early 1900s, data about the relative abundance of seafood are well documented through fishery data for 1985. The literature review summarized below showed that meaningful data can be obtained about food consumption rates 25 years in the past.

The assertion of this study is that current seafood consumption is artificially reduced and toxic substance criteria based on current seafood consumption rates would not be protective of Lummi tribal members. The Lummi Nation expects that the conservation and restoration efforts by the Lummi Natural Resources Department and its federal, state, and local partners will restore salmon runs and other seafood availability in the future at least to levels experienced in 1985. Regulating for a suppressed consumption level prevents tribal members from returning to higher treaty-guaranteed consumption levels in the future.

While seafood consumption levels in 1985 are expected to be higher than current levels, they are not comparable to historic (heritage) levels during the 1800’s and early 1900’s. Adopting a seafood consumption rate based on 1985 consumption data for the updates of the Lummi Nation and Washington State water quality standards and clean-up measures in Bellingham Bay does not concede that obligations under the treaties would be viewed by the Lummi Nation as being fulfilled if waters support 1985 levels of fish intake in the future.

2. METHODOLOGY

The purpose of this section is to describe the methodology used to conduct the Lummi Seafood Consumption Study.

2.1. Target Population and Sample Selection

In the *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (EPA 2000, p. 4-25) the EPA recommends the following approach for defining the target population for a fish consumption study:

States and authorized Tribes may use either high-end values (such as the 90th or 95th percentile values) or average values for an identified population that they plan to protect (e.g., subsistence fishers, sport fishers, or the general population). ... If a State or Tribe chooses values (whether the central tendency or high-end values) from studies that particularly target high-end consumers, these values should be compared to high-end fish intake rates for the general population to make sure that the high-end consumers within the general population would be protected by the chosen intake rates.

For the Lummi Seafood Consumption Study, a population of highest-level consumers was identified to be surveyed. As summarized in Table 2.1, the high-end consumers identified in the study of the Tulalip Tribes and the Squaxin Island Tribe (Toy et al. 1996) were male tribal members and tribal members of both genders in the age range 35 to 49 (Tulalip) and 50-64 (Squaxin). As shown in Table 2.2, the highest consumers identified in the study conducted of the Suquamish Tribe (Suquamish 2000) were male tribal members between 43 and 54 years old. Donatuto (2009) found that for the Swinomish Indian Tribal Community, male tribal members who were boat owners and were in a similar age range (40's to 50's) were the highest consumers. Based on this information, the Technical Advisory Committee concluded that even though the elder population of the tribes may adhere more closely to a traditional seafood-based diet, more seafood is available to the part of the population that owns fishing boats or works on fishing boats, and therefore that this population represents the highest level consumers of the Lummi community.

In the three comparable studies of Indian tribes (CRITFC 1994, Toy et al. 1996, and Suquamish 2000), men consumed more seafood than women and children, respectively. Sampling the high-consuming male population defined above should implicitly protect Lummi tribal subpopulations (e.g., pregnant women and children) that may be more vulnerable but are identified as lower-end consumers in comparable populations. It may be desirable to obtain seafood consumption rates for the general Lummi population including children in the future, but the investigators and the Technical Advisory Committee decided that the resources available for this survey would be most effectively used by concentrating on a well-defined high-level consumer group for which a meaningful sample size and results with good precision could be achieved.

Because the selected environmental baseline was 1985, sampling only male tribal members that were between 40 and 60 years old in 1985 (mid-60's and 70's today) would have severely limited the available sample pool. Data about boat ownership in 1985 were also not available. As noted by the Tribal Advisory Committee, the majority of male tribal members were actively engaged in fishing in 1985 and had access to seafood. For this reason, the sample pool chosen

for the Lummi Seafood Consumption Study was all male tribal members that were 20 years old and older in 1985 (45 years old and older in 2010) living on the Reservation or in neighboring Whatcom County. This strategy had the added advantage of avoiding a bias of the survey towards finfish and crab, which are fished from boats. Manila clams and oysters, for instance, are usually not collected from boats. This approach also avoided biasing the survey towards commercial fishers as opposed to subsistence fishers as clam harvesting plays an especially important role in subsistence for tribal members.

Table 2.1 Adult Consumption Rate of Total Seafood by Age and Gender – Tulalip Tribes and Squaxin Island Tribe (Toy et al. 1996)

Tulalip Tribes				
Age/Gender	n	Mean g/kg/day	S.E.	95 Percent Confidence Interval
18-34	27	0.780	0.140	(0.515, 1.045)
35-49	24	1.275	0.263	(0.778, 1.772)
50-64	16	0.704	1.48	(0.424, 0.984)
65+	6	0.322	0.140	(0.057, 0.587)
Male	42	0.959	0.155	(0.666, 1.252)
Female	31	0.794	0.156	(0.499, 1.089)

Squaxin Island Tribe				
Age/Gender	n	Mean g/kg/day	S.E.	95 Percent Confidence Interval
18-34	54	0.862	0.127	(0.669, 1.055)
35-49	41	0.867	0.154	(0.633, 1.101)
50-64	11	1.232	0.345	(0.707, 1.757)
65+	11	0.786	0.219	(0.453, 1.119)
Male	65	0.926	0.102	(0.771, 1.081)
Female	52	0.847	0.153	(0.614, 1.080)

Table 2.2 Male Adult Consumption Rates by Age – Suquamish Tribe (Suquamish 2000)

Suquamish Tribe					
Age/Gender	n	Mean g/kg/day	S.E.	Median	90th Percentile
16-42	25	3.260	0.675	2.286	8.584
43-54	10	5.212	0.898	4.559	10.290
55+	11	1.640	0.447	1.381	5.220

2.2. Sample Size

The precision for the Lummi seafood consumption rate is defined as being the half width of the 95 percent confidence interval around the final estimate, divided by the mean consumption rate. The desired outcome for the survey was to achieve a precision that was lower than 20% of the estimate of the mean consumption rate. The number of samples required to achieve this precision depends on both the magnitude of the final estimate and the amount of inherent variation in the data.

$$\text{Desired Precision} = 20\% = 0.2$$

$$0.2 \times \bar{x} = 1.96 \times \frac{s}{\sqrt{n}}$$

Rearranged to solve for the number of samples required, this formula is:

$$n = \left(\frac{1.96 \times s}{0.2 \times \bar{x}} \right)^2$$

Where \bar{x} represents the mean of the samples, s represents the standard deviation of the samples, and n represents the number of individuals in the sample.

Because the mean and standard deviation of the Lummi survey samples were not known in advance, existing statistics from similar groups were used to estimate how many samples were required. Because only adult males that are currently older than 45 were to be sampled, the most similar population for which data were available was the group of 46 adult males that were surveyed in the Suquamish study.

This group of 46 men was found to have an average consumption rate of 3.297 g/kg/day and a standard error (SE) of 0.458.

The formula for standard error is:

$$SE = \frac{s}{\sqrt{n}}$$

Rearranging this equation to solve for the standard deviation for the Suquamish group results in:

$$\begin{aligned}s &= SE \times \sqrt{n} \\s &= 0.458 \times \sqrt{46} \\s &= 3.106\end{aligned}$$

Using the mean and standard deviation from the Suquamish group indicated that the number of Lummi men that needed to be surveyed to achieve 20 percent precision was:

$$\begin{aligned}n &= \left(\frac{1.96 \times s}{0.2 \times x} \right)^2 \\n &= \left(\frac{1.96 \times 3.106}{0.2 \times 3.297} \right)^2 \\n &= \left(\frac{6.088}{0.6594} \right)^2 \\n &= (9.233)^2 \\n &= 85.3\end{aligned}$$

Assuming that the Suquamish group is a good model for the Lummi survey, a minimum of 86 completed surveys was determined to be necessary. To accommodate for incomplete or incorrect questionnaires, refusals to participate, or unavailability, this goal was rounded up to 100 respondents.

The statistical consultants of the ATSDR (Cal Franz and Naida Gavrelis of Eastern Research Group Inc. [ERG]) who reviewed these assumptions recommended to also account for the possibility that the variance of the Lummi Seafood Consumption Study might be higher than the variance for the Suquamish study due to the longer recall period (ERG 2010). As the standard error values from the reviewed studies that targeted longer recall periods were not available, it was decided that an increase to 150 samples would account for this possibility.

The Lummi Enrollment Office provided a list of 435 male tribal members age 45 years and older who lived on the Reservation or in neighboring Whatcom County. The list from the Enrollment Office included the tribal enrollment number, name, age, and their address and telephone number at time of enrollment. The tribal enrollment numbers were stratified by age into three groups: 45 to 54, 55 to 64, and 65 and older (to 88). As shown in Table 2.3, the population count decreased with the advancing age of the tribal members. The first group contained 236 members, the second group 110 members, and the third group 87 members.

Table 2.3 Male Tribal Members by Age Group

Group	Age Group (2010)	Age Group (1985)	Count	Samples Selected
1	45 to 54	20 to 29	236	50
2	55 to 64	30 to 39	110	50
3	65 + (to 88)	40 +	87	50
All	All	All	435	150

From each group, 50 members were randomly selected. Choosing 50 members from each group ensured oversampling of older members as an added safeguard against increased variation in the answers. This strategy also ensured that those members that were assumed to be high consumers were not under sampled. Of the resulting 150 randomly selected names, each of the three interviewers (enumerators) was randomly assigned 50 names.

While conducting the survey, it became apparent both that 150 interviews could not be finished in the time allotted and that the target precision of 20 percent required fewer samples than calculated from the Suquamish study. As a result, the desired number of samples was corrected downward to 100 samples. Contacting participants from the sample pool proved to be the biggest obstacle in the execution of the survey. Due to the difficulty in contacting potential survey participants, the sample pool was expanded from the 150 randomly selected participants to all 431 Lummi tribal members of the target population (four potential participants had passed away in the time between determining the sample pool in 2010 and conducting the survey during 2011 and 2012). At the same time, face-to-face recruitment at participants' homes and tribal facilities was emphasized over telephone contacts. In this phase, the interviewers worked from a randomized list of all 431 eligible participants.

2.3. Survey Instrument Design

The following sections describe the survey instrument design and the administration of the survey.

2.3.1. Interviews

During the fish consumption study of the Tulalip Tribes and the Squaxin Island Tribe both a Gladys Block self-administered standardized food frequency questionnaire and an interviewer-administered questionnaire were tested. The self-administered questionnaire resulted in severe underreporting of food intake (Toy et. al. 1996). Interviewer-administered questionnaires were chosen for the Lummi Seafood Consumption Study.

2.3.2. Literature Review

Studies about long-term recall surveys and specifically food recall surveys were reviewed to determine if a survey that inquires about food consumption 25 years in the past can provide reliable results. Based on this literature review, the investigators concluded that it is possible to garner reliable data regarding fish consumption by Lummi tribal members 25 years ago through

recall studies, particularly given the importance and meaning of fish to this particular population and given other factors likely to enhance the reliability of long-term recall that are particular to this population.

Validity of Long-Term Recall Studies

According to the literature, it is generally possible to garner useful data in recall studies with timelines as long as 50 years. In these recall studies, subjects of former surveys or of life-long cohort studies were re-interviewed, which allowed comparing the data recorded in the past with the present day recall. It was found that recall performance strongly depended on the specific topic. For example, survey subjects tend to remember well their body weight in the past with a correlation of 0.95 after ten years and 0.87 after 32 years (Casey et al. 1991). A correlation of 0.84 was achieved for smoking habits after 32 years (Krall, Valadian and Gardner 1989). A father's occupation was remembered with 85 percent accuracy after 50 years, and toilet facilities in post-war Britain with 100 percent accuracy (Berney and Blane 1997).

In studies of the general population, food recall often fared less well with correlations as low as 0.3 (Dwyer et al. 1989). However, the studies that found dietary intake recall to be less reliable generally failed to enlist measures designed to aid recall and enhance the quality of the data (Friedenreich 1994). Moreover, several factors affected the subjects' ability to recall dietary intake. Where the food items have particular importance for the subjects, recall is enhanced. For example, a study with Seventh-Day Adventists in California found that recall over 20 years was generally modest but improved markedly for those foods that had particular importance. Specifically, foods that had special meaning in the culture were recalled with up to 88 percent accuracy (Fraser et al. 1998). Similarly, a series of studies of a multi-ethnic population found that the addition of traditional and culturally important Hispanic food items to questionnaires enhanced recall by Hispanic subjects for the relevant food categories (Matt et al. 2006). Kuhnlein (1992) found that female tribal members of the Nuxalk Nation, a Coastal Salish tribe of Bella Coola in British Columbia, Canada, of age 50 to 86 had no difficulty remembering consumption of traditional foods 50 years in the past.

As described in the foreword section of this study, the Lummi Nation's traditional Chief refers to seafood as a lifeline for the Lummi people. Seafood plays a defining role in Lummi culture. The Lummi Nation is a fishing tribe with currently over 300 registered fishing vessels used to fish for commercial, ceremonial, subsistence purposes. In addition, many tribal members manually harvest many species of clams and oysters to sell and especially to use for ceremonial and subsistence purposes. Seafood is the food that the traditional diet was based on and a means of self-definition for current tribal members. Fishing is perceived as more than a means to make a living, but as an expression of spiritual and cultural "rightness". Many tribal members with well-paid professional jobs will take time away from these jobs to participate in fishery openings. Salmon and other seafood species are well represented in traditional teachings and art work.

Recall is also more accurate for food that is eaten often and/or in a pattern (Krall, Dwyer and Coleman 1988, Johnson-Koslow 2006). Seafood is consumed regularly among Lummi Indians. It is made available by the fishers to their wider families when it is in season and is preserved by smoking, freezing, and canning to be available year round. The fishermen interviewed for this study reported that during the physically strenuous fishing seasons they consumed for instance salmon in the form of fish hash in the morning, would take salmon sandwiches along for lunch, and eat canned salmon out of the jar for snacks. In the evening the freshly caught fish would be barbecued with family and friends. Seafood is also consumed in a pattern among Lummi Indians,

namely, in accordance with the seasonal fisheries. Fishery seasons are well known among tribal members and especially active fishers, and preparations and gear investment start in advance of each opening.

The Lummi Fisheries and Natural Resources Commission and other tribal members are actively involved in the co-management of the diverse fisheries (e.g., the five salmonid species, halibut, cod, Dungeness crab, sea urchins, sea cucumbers). The return of certain species of fish that are not commonly eaten by the general public are anticipated every year, as for instance the short season for hooligans (river smelt) in November in the Nooksack River that causes tribal members of all ages to congregate at the best locations to participate with dipnets. Food preparation methods (“recipes”) for individual species are commonly the same throughout the Lummi population and lead to predictable meals of fish hash, clam fritters, boiled squid and shrimp, and similar. Cinder-block barbeque pits for the traditional Lummi salmon barbeque on fish sticks are found at many tribal homes on the Reservation.

In addition, recall is more accurate for food that is eaten rarely but is unusual or eaten at unique or ceremonial events (Krall, Dwyer and Coleman 1988). Seafood holds a central cultural place among Lummi Indians and is served at ceremonial events such as funerals, namings, burnings, and family events. Several unique events such as the First Salmon Ceremony or celebratory clam bakes have seafood and fishing as their focal point. “Setting the table” with an abundance of fish and shellfish is expected of the host of these events and is usually accomplished by saving for the event and the help of family and friends.

Moreover, recall is affected by subjects’ attentiveness to food, food provision, and overall knowledge of the food in question. In a study of subjects aged 70 and over who were asked to recall their food consumption at ages 65, 45, 25, and 10, recall was more accurate by those subjects involved in procuring and preparing food (Shatenstein et al. 2003). The target group of the Lummi study, male Lummi fishers, actively pursue the procurement of seafood, but also participate in the preparation of salmon barbeques in the traditional Lummi manner (see cover image), clam and crab bakes, and smoking, drying, and canning of salmon and other seafood.

Long-term recall is also affected by dietary stability, with recall being enhanced for those with stable diets over time (Shatenstein et al. 2003). As noted below, the components of the Lummi diet have not varied much over time and individual fish and shellfish species are usually prepared with fairly specific methods that do not vary significantly throughout the community. Furthermore, due to the central cultural significance of consuming seafood, in the absence of suppressing effects, meal portions have not varied much over time.

Given the defining role of seafood in the Lummi culture and the fact that the attributes found by previous studies to enhance long-term recall were present, the investigators and the Technical Advisory Committee were convinced of the reliability of a 25-year recall period for the Lummi tribal population that was surveyed.

The generally accepted studies for the determination of tribal seafood consumption studies were conducted in 1994 (CRITFC), 1996 (Toy et al.), 1999 (Sechena et al.), and 2000 (Suquamish) and are only 9 to 15 years removed from the timeframe that the Lummi Seafood Consumption Study explores. These studies will give additional context to results of the Lummi study.

Recall Enhancement

Several studies explored ways to improve food questionnaires to aid recall and to improve the general interview efficiency. Several successful approaches identified in these studies were applied to the Lummi Seafood Consumption Study.

Listing of food items in the questionnaire supports recall as opposed to free-reporting where the subject has to provide all eaten food items from memory (Krall, Dwyer and Coleman 1988).

Food models significantly help remembering portion sizes (Krall, Dwyer and Coleman 1988; Wirfaelt 1998).

Categories of grouped food items have to be meaningful to the subjects. For instance, grouping foods by nutrient value is less helpful than grouping them by meals (e.g., breakfast, lunch, dinner). Pairing certain items that are usually eaten together supports recall (Krall, Dwyer and Coleman 1988; Krall and Dwyer 1987; Subar et al. 1995; Johnson-Koslow 2006).

Studies that do not take into account the cultural context of the respondents result in underreporting of culturally important foods and can result in over reporting of foods eaten in the majority culture (Teufel 1997, Matt et al. 2006, Johnson-Koslow et al. 2006). A “culturally competent” questionnaire lists food items that are commonly eaten in a specific culture but are not part of the general-population diet and groups the food items according to the food system used in this culture and not necessarily into the commonly used food pyramids or similar general-population systems. Otherwise foods that are not listed, even when the option to add food items exists, are implied to be unimportant and will be underreported, and conversely, food consumption of items might be reported that the respondents feel is expected of them (Teufel 1997). The questionnaire development for the Lummi study applied these considerations as explained in Section 2.3.3 by creating a Lummi-specific questionnaire that aimed to document the entire consumption pattern.

Contracting several foods into one question should be avoided (e.g., asking about oranges and apples separately is more successful than asking about fruit as a group). Contracting questions can lead to misunderstandings, forgotten items, and it also requires computation by the subjects. It was found to be more successful to use “embedded” questions about certain items, where the subject was asked subsequently more details about one item. This, again, avoided the need for computation by the subject (Subar et al. 1995, Krall and Dwyer 1987). As an example, if the questionnaire asks about the frequency of apple consumption and includes apple sauce in the question, the respondent has to add the frequency for these two items, which are eaten in different context before being able to answer the question. Two separate questions solve that problem.

It is difficult for most people to compute seasonal intake over one year (i.e., if the subject eats three meals in a month throughout a four-month season, how many meals does this equal over a year?). Questions that ask for the amount and frequency only throughout one season are easier and more accurate to answer (Subar et al. 1995).

Longer, full-sentence questions and instructions combined with simple wording resulted in survey improvements, as did following the “autobiographical” memory of the respondent and interviewer-administered questionnaires (Friedenreich 1994, Wirfaelt 1998). A longer questionnaire can actually lead to shorter interview times because of better comprehension of the questions, easier retrieval clues, and less need for computation (Subar et al. 1995).

It is important to pay attention to adequate units. Some food items, for example eggs, are not commonly thought about in weight or volume measures but in counts (Subar et al. 1995). For the Lummi Seafood Consumption Study that applied for instance to clams.

Studies inquiring into past events, as well as short-term recall studies, have profited from adding biographical context to the interviews. Interviewers provided a historical timeline of notable events for the era in question, which then was used to construct a personal timeline with events in the life of the subject (“lifegrid”). Other approaches include recalling the time of day an event took place or conversations around an event (Berney and Blane 1997, Wirfaelt 1998, Friedenreich 1994, Krall, Dwyer and Coleman 1988).

Pre-testing the questionnaire in lab- and field-tests was recommended. Pre-tests allow correcting questions for comprehension and reliability (Friedenreich 1994, Subar et al. 1995).

2.3.3. Seafood Species List and Preparation Methods

The study team compiled a list of finfish and shellfish from the lists of species that were used in the previously conducted tribal surveys (Toy et al. 1996, Sechena et al. 1999, Sechena et al. 2003, Suquamish 2000, CRITFC 1994, Swinomish Fish Consumption Survey, in progress). This list was circulated among tribal members of the Tribal Advisory Committee, the Lummi Natural Resources Department (LNR), the Lummi Natural Resources Commission, and the Lummi Cultural Resources Protection Commission. This informal inquiry also allowed for alternative names or more commonly used names for individual species to be identified. Four tribal members of the LNR staff were asked for detailed information about the fish species on the resulting list and about common preparation methods and situations where these species are consumed. These conversations aided in grouping the fish and shellfish species into meaningful categories, and determining how to present the complete consumption pattern for the final survey. The four conversations revealed that individual fish and shellfish species are usually prepared with fairly specific methods that do not vary significantly throughout the community, and that specific parts of the fish or shellfish are consumed for different species. Members of the Lummi Nation generally preserve large amounts of fish through smoking and canning. This fish is then prepared for consumption differently and in different contexts than fresh fish. Additionally, significant amounts of seafood are consumed at the frequent gatherings for funerals, naming ceremonies, and other ceremonial events. The Tribal Advisory Committee indicated that consumption patterns at gatherings are different from everyday meals.

Table 2.4 is the list of the 54 fish and shellfish species that resulted from this process. The Study Team did not expect that each respondent would consume all species.

Table 2.4 List of Seafood Used in the Lummi Questionnaire

Finfish	Shellfish (Bivalves and Other Invertebrates)
Chinook Salmon (King, Black Mouth)	Horse Clams
Sockeye Salmon	Butter Clams
Chum Salmon (Dog)	Geoducks
Coho Salmon (Silver)	Manila Clams (Steamers, Littlenecks)
Pink Salmon (Humpies)	Oysters
Steelhead	Cockles
Surf Smelt	Scallops
Fresh-Water Smelt (Hooligans)	Razor Clams and Jackknife Clams
Herring	Mussels
Grunters (Plainfin Midshipman)	Abalone
Bullhead (Sculpin)	Limpets (China Caps)
Halibut	Barnacles
Flounder and Sole (Flatfish)	Dungeness Crab
Cod	Shrimp
Lingcod	Red Rock Crab
Tuna	Squid
Trout	Octopus (Devil Fish)
Bass	Sea Urchin (Squi'tsi)
Perch	Sea Cucumber
Pollock	Moon Snail
Sturgeon	Chiton
Sable Fish	Crayfish (Crawdaddy)
Spiny Dogfish (Shark)	
Greenling	
Rockfish	
Mackerel	
Skate	
Sting Ray	
Eel	
Catfish	
Lamprey	
Shad	

2.3.4. Questionnaire and Interview Process

Prior to drafting the survey questionnaire, the investigators reviewed the questionnaires used in the Suquamish study, the Swinomish study, and the Alaska Traditional Diet Survey (Ballew et al. 2004).

The Lummi Seafood Consumption Study questionnaire consists of the following parts:

- Introduction
- Consent form (loose leaf)
- Questions about descriptive data
- Timeline (loose leaf)
- Questions about seafood consumption at gatherings
- Questions about seafood consumption at home
- Finish

For each participant, the interviewers received a log page to record the number of contact attempts, the interview date, time, and location.

After an introductory explanation of the survey purpose and procedure (see Questionnaire Section “A Introduction” in Appendix A), the interviewer presented the consent form and asked the participant to sign the form. Questions about descriptive information (e.g., age, weight, and major fisheries) and a timeline exercise followed (Appendix A, Section “B Descriptive Data” and Section “C Timeline”, respectively). For the timeline exercise, a sheet with historical events and pop-cultural references for 1985 was provided, including events from the monthly Lummi newspaper (*Squol Quol*). Questions (e.g., “Where did you live in 1985?”, “Were you married?”) were added to cue the memory about the subjects’ life circumstances during 1985. The answers to those questions were not recorded.

The next part of the questionnaire (Appendix A, Section “D Gatherings”) was designed to inquire about the seafood consumption at community gatherings (e.g., funerals, naming ceremonies, pow-wows, elder lunches). The subjects were asked how many gatherings they attended, what species were eaten at gatherings, and how much seafood they ate in one meal at these events compared to a meal eaten at home.

The majority of the 171-page questionnaire consisted of questions about seafood consumption at home (Appendix A, Section “E Questionnaire”). As described previously, the literature review suggested that including detailed questions about different edible parts of each species and different popular preparation methods would make it easier and faster to answer the questions and would also aid the memory of the respondents. As described in the literature review, condensing questions into bigger categories in order to shorten the questionnaire does not aid memory and forces the respondents to calculate amounts and instances (Subar et al. 1995, Krall and Dwyer 1987). Consequently, the questionnaire was structured to accommodate details about different edible parts and preparation methods (e.g., fillet, head, soup, and whole fish), preservation method (fresh, frozen, smoked, canned), and seasonality.

For each species listed in the questionnaire, the respondents were asked if they ate this species in 1985. If they confirmed consumption of the species, the respondents were asked to define the portion size of a typical meal with the help of scaled portion model images.

The frequency of consumption for each meal could be reported in “times per day, week, month, or year”. If some species were only consumed in season by the respondents, they were given the option to define the length of the season in months and to report the frequency of consumption in “times per day, week, or month” for only those months.

For each seafood species, an accompanying booklet showed a picture of the fish or shellfish (see Appendix B). The pictures ensured that the interviewer and the participant were referring to the same species, as some fish and shellfish are known by several common names.

The respondents had the option to add more species at the conclusion of the interview if they consumed species of seafood in 1985 that were not listed in the questionnaire.

At the end of the interview (Appendix A, Section “F Finish”), the participants were asked to sign a second line on the consent form to confirm that the interview took place. The participants were then offered a copy of the consent form for their records. Participants that finished the interview were paid a \$25 honorarium for their time.

A single interview lasted approximately 1.5 to 2 hours, depending on the consumption pattern of the participant and the personal information that was shared during the interview.

The Tribal Advisory Committee, consisting of tribal members of the Natural Resources Department, the Tribal Natural Resources Commission, the Cultural Resources Department and others reviewed the draft questionnaire to check the assumptions of the investigators.

2.3.5. Portion Models

The goal of the study was to obtain a value measured in “grams of seafood per kilogram of body weight per day” (g/kg/day) calculated over all types of seafood consumed. To achieve this goal, the survey participants had to be able to accurately report the size of a typical meal. As it is difficult to estimate how much a meal portion might weigh, portion models simplify the identification of the size of a typical portion.

Portion models can be three-dimensional realistic-looking resin molds, simplified blocks, or scaled photographs. Since more than 30 portion models were needed for this study, scaled photographs were selected to be the most cost-efficient and practicable solution. Scaled images were produced according to the recommendations of the EPA’s National Health and Environmental Effects Research Laboratory (NHEERL), which has developed guidelines and computer-assisted personal interviewing (CAPI) software for tribal fish consumption surveys (EPA 2011, Kissinger et al 2010).

With the help of an experienced cook from the community, typical meals were prepared and photographed. Prior to cooking, the weight of the seafood content as it appeared in the photographs was recorded. Therefore, survey results are reported in uncooked weight. The seafood used to develop the scaled photographs was partially store-bought, partially provided by tribal members, and partially obtained directly by the investigators.

Five species were not available for direct measurement. Sea urchins, for instance, were not harvested locally in the time span of the study. Pinto abalones were consumed in 1985 but are now protected due to their endangered status. In these five cases, weights were derived from the literature and the portion model pictures were scaled and produced with image editing software. Some meal part weights could not be accurately determined and were eaten so rarely that the portion model weights were set to zero for these instances. Using a seafood mass of zero has the

effect of underestimating total seafood consumption for those individuals that ate these meal parts. However, the magnitude of this bias is likely to be very small because these meal parts were usually eaten infrequently, and they usually impacted very few (1 – 6) questionnaires. Please see Appendix C for portion model weights and the method used to determine the portion model weights. The uncooked weights shown in Appendix C were used to report survey results.

The portion model images were printed to scale (see Appendix C for examples) and presented to the participants during the interview. The participants could then report the amount typically consumed as a multiplier of the model size (e.g., half of the model portion, twice the model portion). As a three-dimensional aid, the plate and bowl that the model portions were placed on in the photographs were also provided during the interview. Where appropriate (e.g., smelt, clams), the participants had the choice to report the count of the individual food items to describe the portion size.

Some portion models were chosen to represent several different meals or fish species where possible. For example, the salmon fillet model was used for all salmon species (i.e., Chinook, sockeye, chum, coho, pink, and steelhead) and the mid-sized fish fillet was used for the fillets of many species including cod, lingcod, and trout. After consultation with experienced cooks, it was assumed that the same amount of “clam meat” is used for clam fritters made from different clam species: more or less individual clams would be used to arrive at the same meat to dough ratio for the fritters. This made it possible to use one clam fritter food model for all clam species. The same was true for fish soup and clam chowder, and fried clam strips. For some very unique meals (e.g., salmon head, whole hooligans [smelt], Dungeness crab, horse clam, and geoduck necks [siphons]) this approach was not possible and individual food models were prepared for each of these items.

2.4. Institutional Review Board

The study is largely funded through a grant awarded by the Agency for Toxic Substances and Disease Registry (ATSDR). During a November 2009 project meeting, ATSDR staff notified the project team that the survey instrument was required to be reviewed by the Institutional Review Board (IRB) of the ATSDR because of the involvement of human subjects in the project. The survey instrument was developed by the project team and transmitted to the ATSDR for the IRB review on April 1, 2010. During July 2010, the ATSDR determined that their IRB review was not required and that a tribal IRB would be appropriate for the survey.

The Lummi Nation government does not maintain an IRB. However, the Northwest Indian College (NWIC), which has a campus on the Lummi Indian Reservation, had previously established an IRB. The NWIC IRB consists of NWIC staff members, researchers from other institutions, and community members. The Lummi Natural Resources Department Director determined that the College IRB would be able to provide the required review, even though the NWIC has no authority over the actions of the LIBC.

After providing background information and the survey instrument to the IRB members, the survey was formally presented to the IRB on October 15, 2010. Following the meeting, the IRB issued a letter stating that they conditionally approved the survey but requested changes to the consent form and the approval of the survey by both the Lummi Cultural Resources Protection Commission and the Lummi Natural Resources Commission. After a presentation to the Cultural Resources Protection Commission on November 17, 2010, the Commission approved

the survey and provided the support letter to the IRB. The Natural Resources Commission had approved the study prior to submittal of the grant application but also submitted a letter to the IRB to document their approval. The NWIC IRB issued an approval letter to the LNR for the Lummi Seafood Consumption Study on December 1, 2010 and an extension on November 1, 2011.

2.5. Contact Letter

Approximately three weeks before the start of the survey, the 150 originally selected tribal members were mailed a letter describing the survey and requesting their participation in the survey (see Appendix D).

2.6. Interviewer Recruitment and Training

Three interviewers (enumerators) were recruited to contact the participants and administer the interviews. The interviewers were existing members of the LNR staff who were hired for this project as temporary project employees performing the interviews in addition to their regular duties. Hiring the LNR staff members for this task ensured professional and reliable candidates that were respected community members. This arrangement also simplified communication between the study manager and the interviewers during the survey.

The interviewers received 12 hours of training (1.5 days) by the study manager, the statistics and database developer, and the principal investigator. The training started with four hours of class room instruction about the purpose of the survey and survey methodology (see Appendix E). Eight hours over two days were dedicated to developing a telephone script together, and to practicing interviews with each other under supervision for immediate feedback. Both practice sessions resulted in refinements to the questionnaire wording and arrangement.

During the survey, the study manager and the interviewers met weekly to check on progress and discuss issues that the interviewers had encountered. As the interviewers and the study manager worked in the same department, questions could be addressed immediately as they arose.

Each interviewer was initially responsible for a list of 50 participants who were randomly assigned to the interviewer. Half of the budgeted time for an interview was allocated to contact the participants and set up an interview appointment, and half of the time to administer the interview. Interviews could take place at a location of the choosing of the participant (e.g., at the home of the participant, at the LNR building) and a convenient time including after office hours and weekends.

As described previously, during the survey the sample pool was expanded from 150 randomly selected participants to the entire 431 sample pool to address the difficulties that the enumerators were having in their efforts to contact participants. At the same time, the target sample size was reduced from 150 desired interviews to 100 completed interviews.

2.7. Quality Control

The following quality control measures were implemented throughout the development and execution of the survey:

Tribal Advisory Committee: A focus group of tribal members was convened to advise the investigators on questions of Lummi-specific consumption issues and on the appropriateness and effectiveness of questions in the interview.

Technical Advisory Committee: A Technical Advisory Committee of experts who were familiar with tribal fish consumption surveys or were experienced conducting similar surveys reviewed all stages of the survey.

Outside Experts: A team of statistical consultants for the ATSDR reviewed the survey instrument and the statistical methods, as well as the final data computation. The NWIC IRB advised the team on matters of confidentiality and wording of the consent form.

Pilot Test: The questionnaire was tested on a member of the LNR staff before finalization and further refined after the interviewer training sessions.

Interviewer Training: Twelve hours of interviewer training and immediate feedback from the study manager throughout the survey was provided. In addition, the enumerators were able to discuss challenges that were encountered while conducting interviews during the weekly meetings.

Procedures to Protect Confidentiality: The identifying information (the consent form including the signed confirmation by the participant that the interview took place) was separated from the questionnaires by the study manager upon receipt and stored separately in a locked file cabinet. The completed questionnaires were tracked by an ID number that could not be reconnected to the identifying information. The identifying information was destroyed after the completion of the survey.

Data Entry and Verification: The data were entered into the database by the Study Manager. The Database Developer verified the data entry by the Study Manager.

2.8. Communications Plan

The Lummi Seafood Consumption Study was publicized in the community through the following steps:

The study was mentioned briefly in the LNR department news section of the *Squol Quol* (Lummi monthly newspaper) five times between April 2010 and May 2011. Two dedicated articles announcing and explaining the survey appeared in the March 2011 edition and the July 2011 edition of the *Squol Quol*.

An invitation letter was sent to 150 randomly selected participants on April 7, 2011, approximately three weeks before the interviewers started to contact the participants individually. The letter explained the purpose of the survey, how the survey would be conducted, and requested participation in the survey (see Appendix D).

The summary results of the survey will be published in the *Squol Quol* following completion of the study and final review by the Technical Advisory Committee.

The final report (this document) will be submitted to the LIBC and the ATSDR following final review by the Technical Advisory Committee

The investigators intend to publish the survey in a scientific journal in the future as time and work load constraints allow.

2.9. Statistical Methods and Database

A custom Access database was developed simultaneously with the survey instrument. The Lummi Seafood Consumption Study database was used to calculate the total amount of seafood consumed for each individual during one year based on the survey responses. The results were then used to compute the daily seafood consumption rates for the target population.

The daily seafood consumption rates were derived from the responses about at-home consumption and consumption at gatherings. The consumption at gatherings was calculated from the average amount of food eaten in one meal at home multiplied by the number of gatherings attended. In order to capture differences in eating patterns between at-home meals and gatherings, the respondents were asked if they consume meal sizes at a gathering that are different from meal sizes at home. The difference, if any, was given in percent relative to the home meal size (e.g., 100% = same meal size; 200% = twice the home meal size). The average gathering meal size was then calculated by adjusting the average home meal size for this respondent by the percent difference between at-home and at-gathering meal size before multiplying the resulting value with the number of gatherings attended. This approach assumes that a participant consumes the equivalent of one meal at each gathering, which presumably underestimates the actual consumption but was accepted as a penalty for time efficiency. The resulting total amount of seafood consumed at gatherings was added to the total amount of seafood eaten at home. This method allows the consideration of seafood consumption and the difference in consumption patterns at gatherings without having to ask additional questions for each of the 54 species.

The seafood consumption value was first divided by the respondent's reported weight in 1985, and then by 365 days per year, to arrive at the desired statistic of g/kg/day for each individual that participated in the survey. The database export tool also provided summary information for each respondent indicating how much of the total seafood consumed in 1985 was eaten at home versus at gatherings.

The database also allows the user to calculate the consumption rate for selected seafood species, or to show the values only for respondents within specific age classes.

Although the study is designed to reliably estimate the seafood consumption rates of a high-consumption demographic, there was the possibility that outlier results may compromise the accuracy and precision of the survey. Accordingly, in consultation with the Tribal Advisory Committee, outlier values that exceed the 90th percentile value were excluded from further analysis.

Descriptive statistics (Mean, Median, Standard Deviation, Standard Error, Count) for the remaining seafood consumption rates were derived using the Data Analysis Add-In of the Microsoft Excel software.

3. RESULTS

3.1. Time of Survey

The first survey questionnaire was completed on May 5, 2011 and the last survey completed on March 15, 2012.

Table 3.1 Survey Interviews Completed by Month

Month	Number of Interviews
May 2011	17
June 2011	6
July 2011	7
August 2011	0
September 2011	9
October 2011	0
November 2011	0
December 2011	1
January 2012	15
February 2012	24
March 2012	3
Total	82

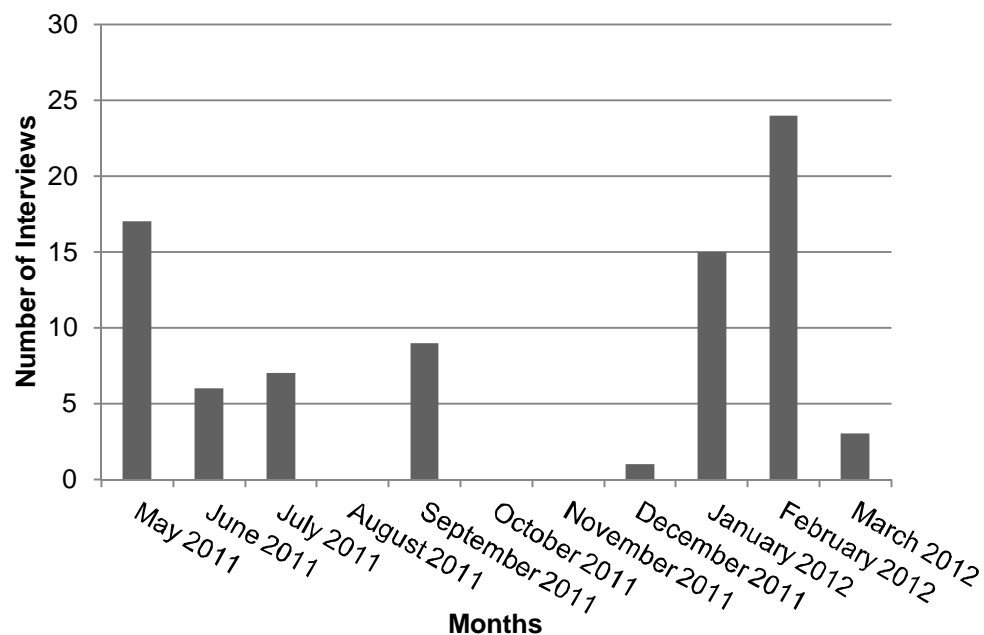


Figure 3.1 Survey Interviews Completed by Month

3.2. Participation

Overall 82 questionnaires were completed for the survey. Contacting participants proved to be the biggest obstacle to completing the survey. Finding accurate contact information and reaching participants by telephone was found to be very time consuming and not effective. As a result, the sample pool was expanded from the randomly sampled 150 participants from the targeted population to all 431 Lummi tribal members of the target population. At the same time, face-to-face recruitment at participants' homes and tribal facilities was emphasized over telephone contacts. Of the original sample pool of 150 participants, 32 percent (48 tribal members) were interviewed. The 82 completed questionnaires represent 19 percent of the 431 people in the target population.

Reasons given by people to not participate in the survey included:

- Time constraints
- Respondent did not live in the survey area in 2011/2012
- Respondent did not live in the survey area in 1985
- Respondent was currently in jail
- Respondent did not agree with tribal policies
- Old age
- Unspecified reason
- Mental health issues

3.3. Survey Precision

The estimated seafood consumption rate has a computed precision of ± 16.5 percent with outliers removed. This level of precision is better than the initial goal of 20 percent even though less than the goal of 100 questionnaires were completed. Figure 3.2 shows the cumulative precision values for the study. As shown in Figure 3.2, the mean seafood consumption rate stabilized after the completion of approximately 30 questionnaires.

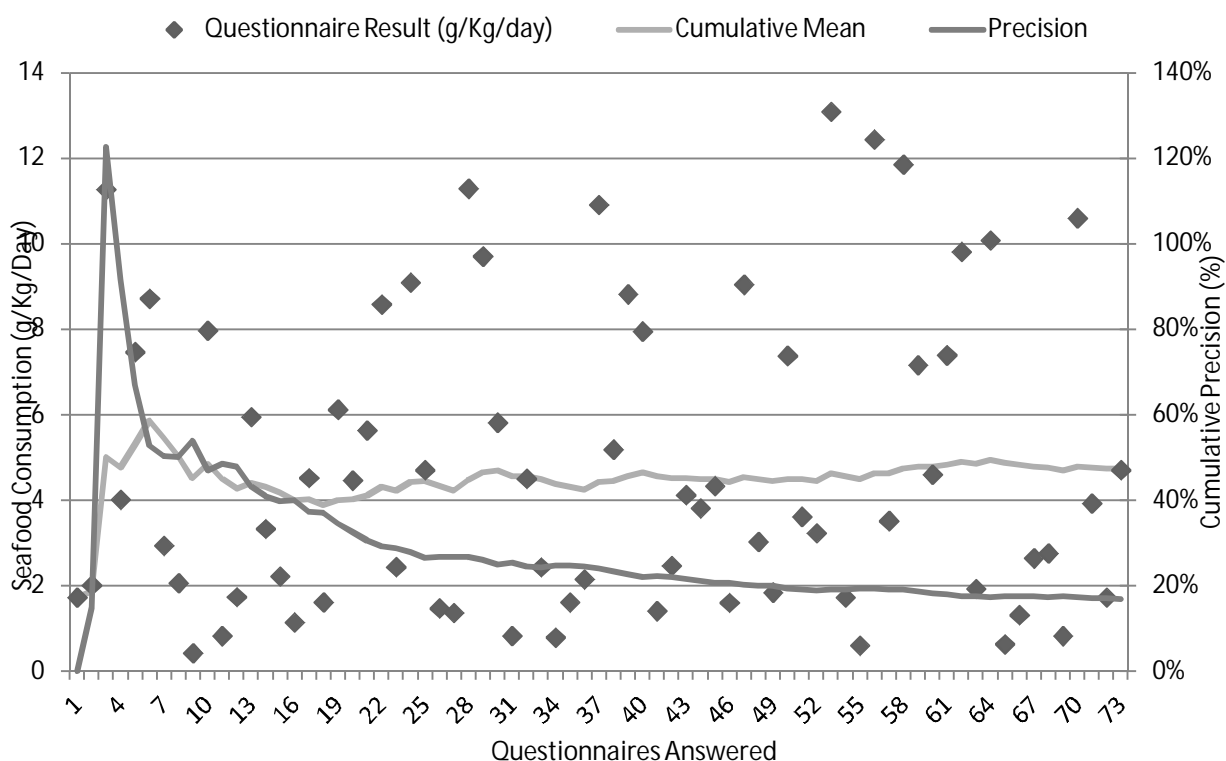


Figure 3.2 Cumulative Mean and Cumulative Precision Values (With Outliers Removed)

3.4. Demographics

Demographic data were collected as part of the survey in order to better characterize the sample population. The collected demographic data included information about: age, weight in 1985, fishery participation, where consumed seafood was obtained, and seafood consumption patterns.

3.4.1. Age

As described previously the target population and survey respondents were male Lummi tribal members 45 years and older in 2010 (year of survey design) residing on the Reservation or in neighboring Whatcom County. This target population was 20 years and older during 1985.

The age distribution of the respondents is shown in Table 3.2 and Figure 3.3. The youngest respondents were 20 years old in 1985 and the oldest respondent interviewed was 62 years old in 1985. The majority of respondents (48.8 percent) were between 20 and 29 years of age in 1985. The mean age of the respondents was 33 in 1985.

Table 3.2 Age Distribution of Respondents in 1985

Age Group (years 1985)	Age Group (years 2010)	Number	Percent of Total
20-29	45-54	40	48.8%
30-39	55-64	23	28.0%
40-49	65-74	12	14.6%
50-59	75-85	5	6.1%
60-69	85-94	2	2.4%
All	All	82	100%

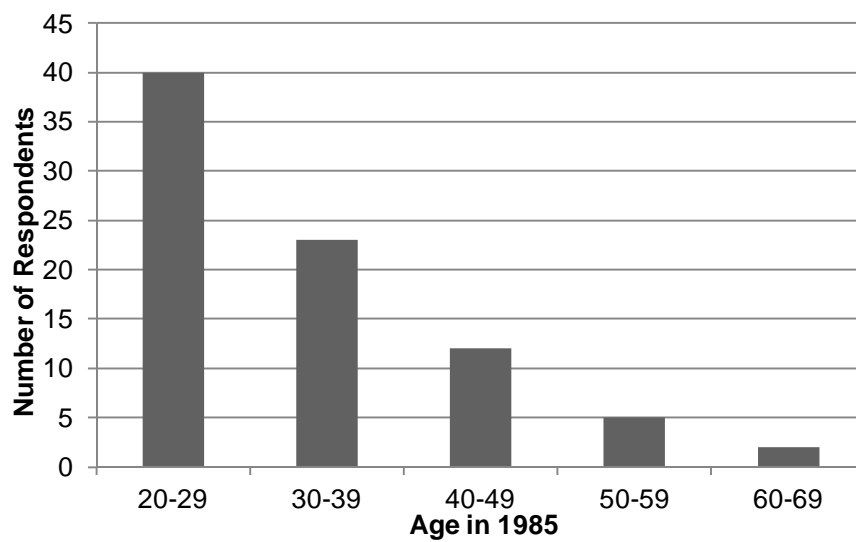


Figure 3.3 Age Distribution of Respondents in 1985

3.4.2. Weight

The respondents reported their body weight for 1985 during the interviews. The reported weight distribution is shown in Table 3.3 and Figure 3.4. The majority of all respondents (36.6 percent) reported weights between 71 and 80 kg (155 and 176 pounds [lb]). The average reported weight of the respondents was 82.6 kg (182 lb).

Table 3.3 Weight Distribution of Respondents in 1985

Weight Range (kg)	Weight Range (lb)	Number of Respondents	Percentage of Total
51 - 60	112 - 132	4	4.9%
61 - 70	133 - 154	8	9.8%
71 - 80	155 - 176	30	36.6%
81 - 90	177 - 198	23	28.0%
91 - 100	199 - 220	9	11.0%
101 - 110	221 - 243	4	4.9%
111 - 120	244 - 265	1	1.2%
121 - 130	266 - 287	0	0.0%
131 - 140	288 - 309	0	0.0%
141 - 150	310 - 331	3	3.7%
All	All	82	100%

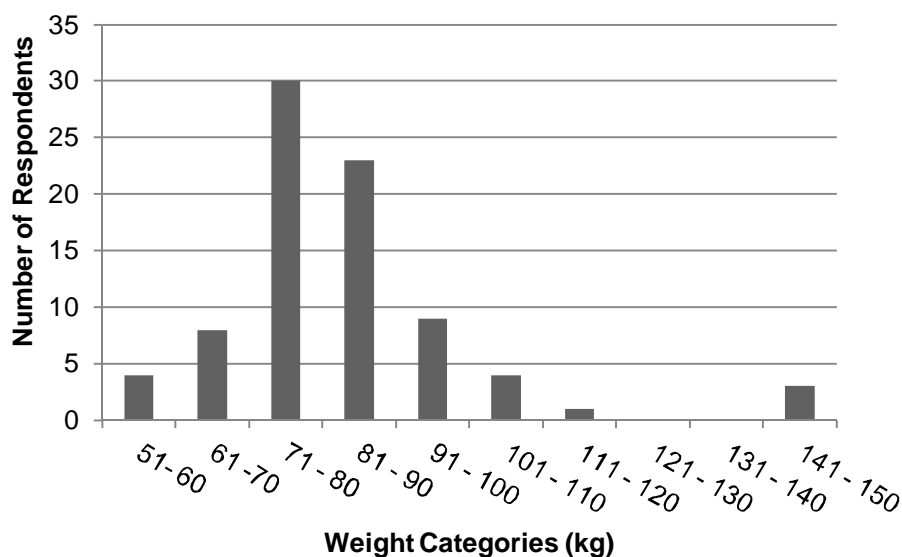


Figure 3.4 Weight Distribution of Respondents in 1985

3.4.3. Fisheries Participation

Fishing Licenses

As shown in Table 3.4, 95 percent of the 82 respondents held a fishing license during 1985. Of these respondents 73 percent also held a fishing license during the 2011/2012 season.

Table 3.4 Fishing License Holders in 2011/2012 and 1984/1985/1986

Year		Response	
		Yes	No
1984/1985/1986*	Number	78	4
	Percent of Total	95%	5%
2011/2012	Number	60	22
	Percent of Total	73%	27%

*The questionnaire asked if the respondent held a fishing license during either of these years. Licenses are typically issued from June to June.

Commercial or Ceremonial and Subsistence (C&S) Use

Lummi fishers will either sell their catch to licensed fish buyers (commercial use), or the catch will be used for tribal gatherings (ceremonial use) or home or family consumption (subsistence use). As shown in Table 3.5, during 1985, respondents sold on average 92 percent of their catch for commercial purposes and used 8 percent for C&S purposes. During the 2011/2012 season, on average 74 percent of the catch was sold commercially and 26 percent was used for C&S.

Table 3.5 Commercial, Ceremonial, and Subsistence Use in 1985 and 2011/2012

Date	Commercial Use Average	Ceremonial and Subsistence Use Average
1985	92%	8%
2011/2012	74%	26%

Fisheries

In addition to the general fishing license, each fisher has to purchase a “fish sticker” for each specific fishery. Table 3.6 and Figure 3.5 show the number of respondents that participated in each fishery. Each respondent may participate in several different fisheries in any given year. During 1985, 94 percent of the respondents participated in the salmon fishery, while only 61 percent participated in the salmon fishery in 2011/2012.

Table 3.6 Number of Respondents Participating by Type of Fishery*

Year		Type of Fishery							
		Salmon	Crab	Shrimp	Clams	Halibut	Sea Cucumbers	Sea Urchins	Other
1985	Number	77	22	4	25	10	1	2	1
	Percent of Total Respondents (82)	94%	27%	5%	30%	12%	1%	2%	1%
2011/2012	Number	50	27	8	30	13	1	1	1
	Percent of Total Respondents (82)	61%	33%	10%	37%	16%	1%	1%	1%

*Respondents may participate in more than one fishery type in any year.

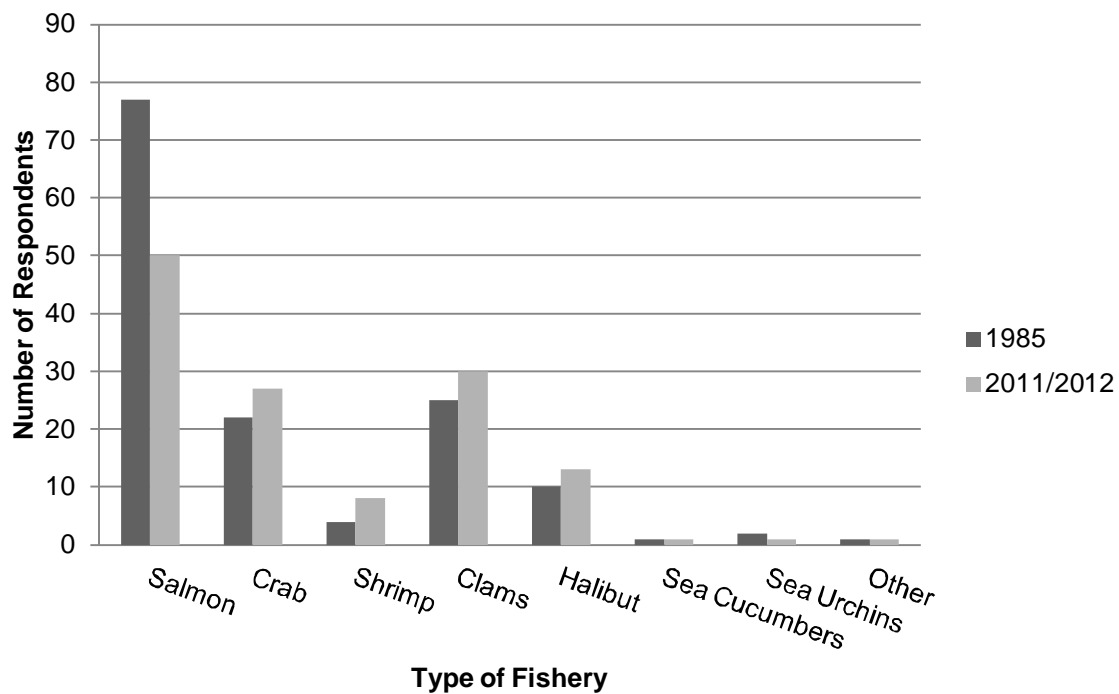


Figure 3.5 Number of Respondents Participating by Type of Fishery*

*Respondents may participate in more than one fishery type in any year.

3.4.4. Seafood Origin

All respondents were consumers of seafood. Respondents were asked about the origin of the seafood they consumed and any changes in where the seafood they consumed originated between 1985 and present. As shown in Table 3.7 and Figure 3.6, the majority of seafood consumed during 1985 and 2011/2012 was caught by the respondents, their family, or friends in local waters (see Figure 1.2).

Table 3.7 Origin of Consumed Seafood

Year	Origin of Seafood		
	Local Waters	Store	Restaurant
1985	97%	1%	3%
2011/2012	87%	5%	8%



Figure 3.6 Origin of Consumed Seafood

3.4.5. Seafood Consumption Patterns

The respondents were asked if they were eating more or less seafood in 2011/2012 than in 1985 and about possible reasons for any changes in seafood consumption. Of the total respondents, 67 percent ate more seafood in 1985 than in 2011/2012, 23 percent were eating the same amount in 2011/2012 as in 1985, and 10 percent were eating less seafood in 1985 than in 2011/2012. Independent of this decrease or increase in seafood consumption, 84 percent reported that they would like to eat more seafood than they were eating in 2011/2012. Table 3.8 lists the responses to reasons that were offered to account for a change in seafood consumption.

Table 3.8 Reasons for Changes in Seafood Consumption between 1985 and 2011/2012

Question	Number of Responses					
	More		Less		No Change	
	N	%	N	%	N	%
Did you eat more or less seafood in 1985 than now?	55	67%	8	10%	19	23%
Possible reasons for eating a different amount of seafood:						
Family/friends give fish more/less/no change?	7	9%	32	39%	43	52%
Elder's lunches with fish are served more/less/no change?	10	6%	31	12%	36	44%
	True		False		Not Applicable	
	N	%	N	%	N	%
Your family used to have a boat or gear but does not own a boat or gear anymore.	41	50%	37	45%	4	5%
There are fewer places to fish because there is no access anymore (for example: defective boat ramps, not allowed to fish in certain areas, historic fishing areas blocked or filled in).	63	77%	15	18%	4	5%
You collect less shellfish since the shellfish beds in Portage Bay were closed.	66	80%	13	16%	3	4%
You eat less fish because you prefer other foods.	13	16%	69	84%	0	0%
You fish less because you had to take another job to support yourself.	65	79%	16	20%	0	0%
Other reasons given for a change in seafood consumption were:					N	
Age					3	
Physical restrictions/disability from illness					2	
Not economically viable					2	
Less availability of fish					3	
Not a (commercial) fisherman anymore					3	
Restrictive fishery management					4	
More "red tides"					1	
Did not want to participate in overfishing					1	

3.5. Gatherings

Examples of community gatherings attended by the respondents include: pow-wows, naming ceremonies, funerals, weddings, holiday gatherings, smokehouse gatherings, and the Stommish Festival. Seafood is served at all these events. In 1985, approximately 88 percent of the respondents reported that they attended community gatherings. As summarized in Table 3.9 and Figure 3.7, the number of gatherings attended in one year ranged from 0 to 150.

Table 3.9 Gatherings Attended by Respondents in 1985

Number of Gatherings Attended	Number of Respondents	Percent of Total
0	10	12.2%
1-10	25	30.5%
11-20	22	26.8%
21-30	16	19.5%
31-40	3	3.7%
41-50	0	0.0%
51-60	5	6.1%
61-140	0	0.0%
141-150	1	1.2%
All	82	100%

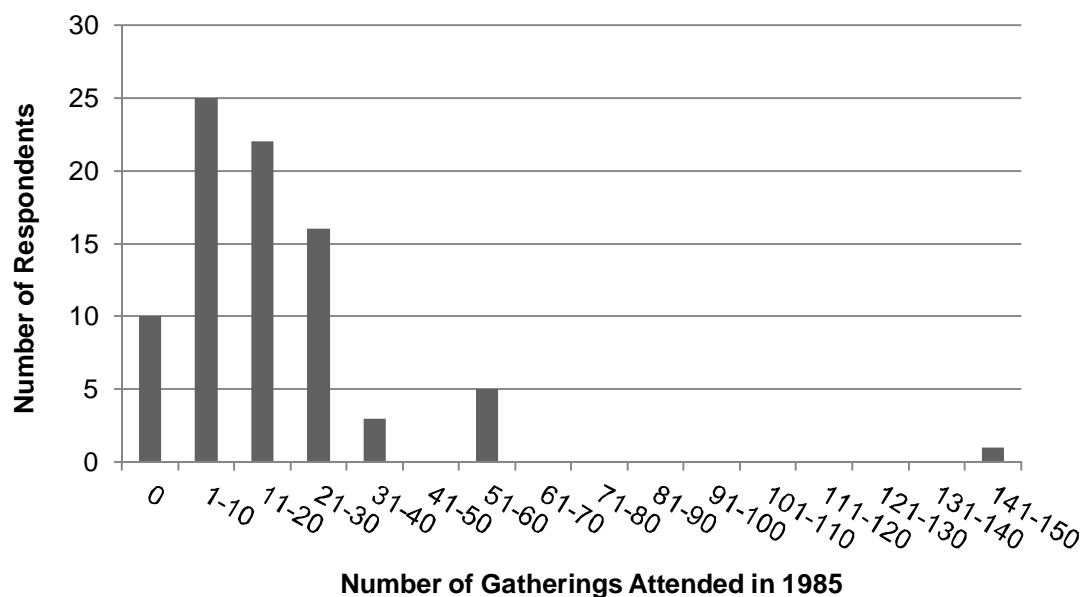


Figure 3.7 Gatherings Attended by Respondents in 1985

Meal sizes consumed at gatherings relative to meal sizes consumed at home ranged from 25 percent of a home meal to 400 percent of a home meal. The most common responses were 100 percent (the same size as a home meal) and 200 percent (twice the amount of a home meal) (Table 3.10 and Figure 3.8).

**Table 3.10 Meal Sizes Consumed at Gatherings
Relative to Home Meal Sizes**

Relative Meal Size	Number of Respondents	Percent of Total
25%	2	2.4%
50%	1	1.2%
75%	5	6.1%
100%	25	30.5%
125%	3	3.7%
150%	10	12.2%
175%	0	0.0%
200%	22	26.8%
225%	0	0.0%
250%	0	0.0%
275%	0	0.0%
300%	3	3.7%
325%	0	0.0%
350%	0	0.0%
375%	0	0.0%
400%	1	1.2%
All	82	100%

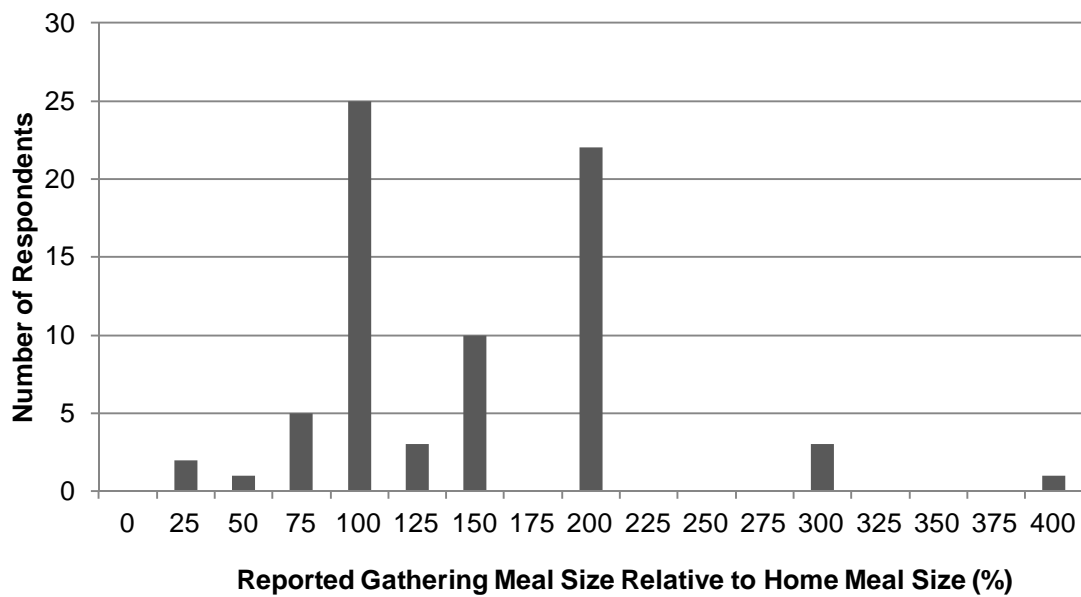


Figure 3.8 Meal Sizes Consumed at Gatherings Relative to Home Meal Sizes

3.6. Seafood Species

Of the 54 species listed in the questionnaire, 52 species were eaten by the respondents and 5 additional species were identified by respondents. The most popular species was sockeye salmon, which was eaten by 100 percent of the respondents. The most popular shellfish and other invertebrate species was Dungeness crab, which was eaten by 93.9 percent of the respondents.

Table 3.11 lists the species identified in the questionnaire, the species added by respondents, and the number of respondents consuming each species at home or at gatherings.

Table 3.12 and Figure 3.9 summarize the information regarding the number of species consumed by the respondents. The number of seafood species consumed by individual respondents ranged from 4 to 42 species; the average number of seafood species consumed by individual respondents was 18 different species.

Table 3.11 Seafood Species Consumed by Respondents

Seafood Species	Consumed at Home		Consumed at Gatherings	
	Count	% of Total	Count	% of Total
Finfish				
Sockeye Salmon	82	100.0%	69	84.1%
Chinook Salmon (King, Black Mouth)	81	98.8%	70	85.4%
Fresh-Water Smelt (Hooligans)	78	95.1%	68	82.9%
Chum Salmon (Dog)	74	90.2%	63	76.8%
Coho Salmon (Silver)	65	79.3%	57	69.5%
Halibut	65	79.3%	66	80.5%
Tuna	65	79.3%	42	51.2%
Steelhead	45	54.9%	42	51.2%
Cod	42	51.2%	57	69.5%
Flounder and Sole	37	45.1%	43	52.4%
Rockfish	37	45.1%	43	52.4%
Lingcod	36	43.9%	50	61.0%
Trout	27	32.9%	23	28.0%
Pink Salmon (Humpies)	26	31.7%	33	40.2%
Surf Smelt	24	29.3%	30	36.6%
Sturgeon	17	20.7%	17	20.7%
Grunters (Plainfin Midshipman)	16	19.5%	22	26.8%
Skate	16	19.5%	18	22.0%
Herring	13	15.9%	24	29.3%
Pollock	12	14.6%	11	13.4%
Sable Fish	12	14.6%	20	24.4%
Catfish	5	6.1%	5	6.1%
Bullhead (Sculpin)	4	4.9%	4	4.9%
Greenling	4	4.9%	8	9.8%
Bass	3	3.7%	7	8.5%
Perch	3	3.7%	12	14.6%
Spiny Dogfish (Shark)	2	2.4%	3	3.7%
Eel	2	2.4%	7	8.5%
Shad	2	2.4%	2	2.4%
Crayfish (Crawdaddy)	1	1.2%	5	6.1%
Mackerel	1	1.2%	8	9.8%
Sting Ray	1	1.2%	3	3.7%
Lamprey	0	0.0%	0	0.0%

Table 3.11 Seafood Species Consumed by Respondents (continued)

Seafood Species	Consumed at Home		Consumed at Gatherings	
	Count	% of Total	Count	% of Total
Shellfish and Invertebrates				
Dungeness Crab	77	93.9%	68	82.9%
Butter Clams	75	91.5%	71	86.6%
Oysters	73	89.0%	69	84.1%
Horse Clams	69	84.1%	64	78.0%
Manila Clams (Steamers, Littlenecks)	66	80.5%	66	80.5%
Shrimp	48	58.5%	61	74.4%
Octopus (Devil Fish)	43	52.4%	51	62.2%
Cockles	33	40.2%	47	57.3%
Scallops	24	29.3%	40	48.8%
Sea Urchin (Squi'tsi)	24	29.3%	41	50.0%
Mussels	21	25.6%	35	42.7%
Razor Clams and Jackknife Clams	18	22.0%	29	35.4%
Geoducks	13	15.9%	24	29.3%
Red Rock Crab	10	12.2%	16	19.5%
Abalone	9	11.0%	13	15.9%
Sea Cucumber	8	9.8%	14	17.1%
Squid	6	7.3%	23	28.0%
Chiton	6	7.3%	6	7.3%
Limpets (China Caps)	2	2.4%	4	4.9%
Barnacles	2	2.4%	5	6.1%
Moon Snail	0	0.0%	1	1.2%
Other Species Identified by Respondents				
King Crab	2	2.4%	1	1.2%
Tanner Crab	1	1.2%	0	0.0%
Spider Crab	1	1.2%	0	0.0%
Red Snapper	1	1.2%	0	0.0%
Sardines	1	1.2%	0	0.0%

Table 3.12 Number of Seafood Species Consumed by Individual Respondents

Number of Species Consumed	Number of Respondents	Percent of Total
1-5	1	1.2%
6-10	6	7.3%
10-15	21	25.6%
16-20	21	25.6%
21-25	15	18.3%
26-30	5	6.1%
31-35	2	2.4%
36-40	1	1.2%
41-45	1	1.2%
All	82	100%

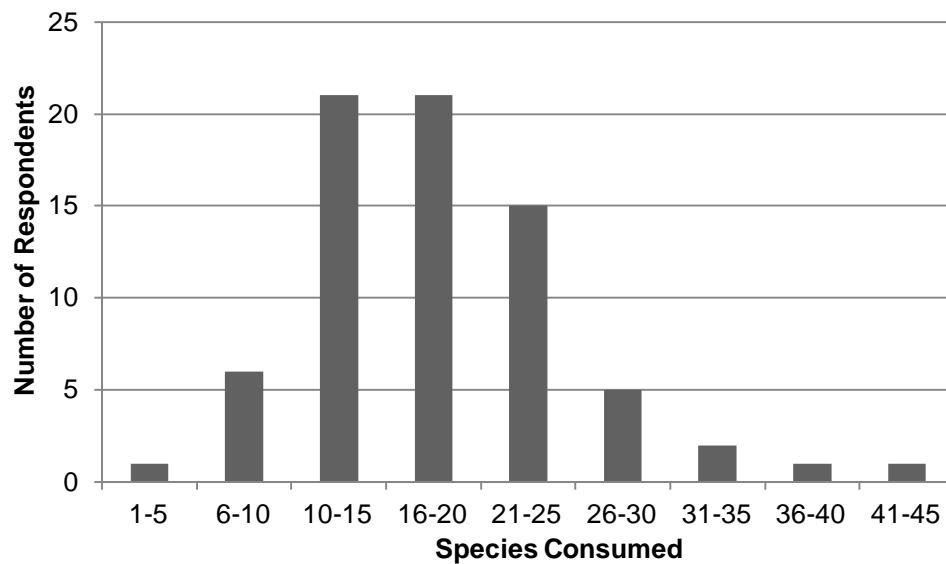


Figure 3.9 Number of Seafood Species Consumed by Individual Respondents

3.7. Lummi Fish Consumption Rate

The Lummi Seafood Consumption Survey results are summarized in Table 3.13 and Figure 3.10. As shown, most of the respondents consumed 14 g/kg/day or less of fish per day in 1985.

Table 3.13 Lummi Fish Consumption Rates 1985

Consumption Rate Categories (g/kg/day)	Number of Respondents	Percent of Total
0.00 - 2.00	21	25.6%
2.01 - 4.00	17	20.7%
4.01 - 6.00	13	15.9%
6.01 - 8.00	7	8.5%
8.01 - 10.00	7	8.5%
10.01 - 12.00	6	7.3%
12.01 - 14.00	3	3.7%
14.01 - 16.00	1	1.2%
16.01 - 18.00	1	1.2%
18.01 - 20.00	1	1.2%
20.01 - 22.00	2	2.4%
22.01 - 32.00	0	0.0%
32.01 - 34.00	1	1.2%
34.01 - 56.00	0	0.0%
56.01 - 58.00	1	1.2%
58.01 - 60.00	0	0.0%
60.01 - 62.00	0	0.0%
62.01 - 64.00	1	1.2%
All	82	100%

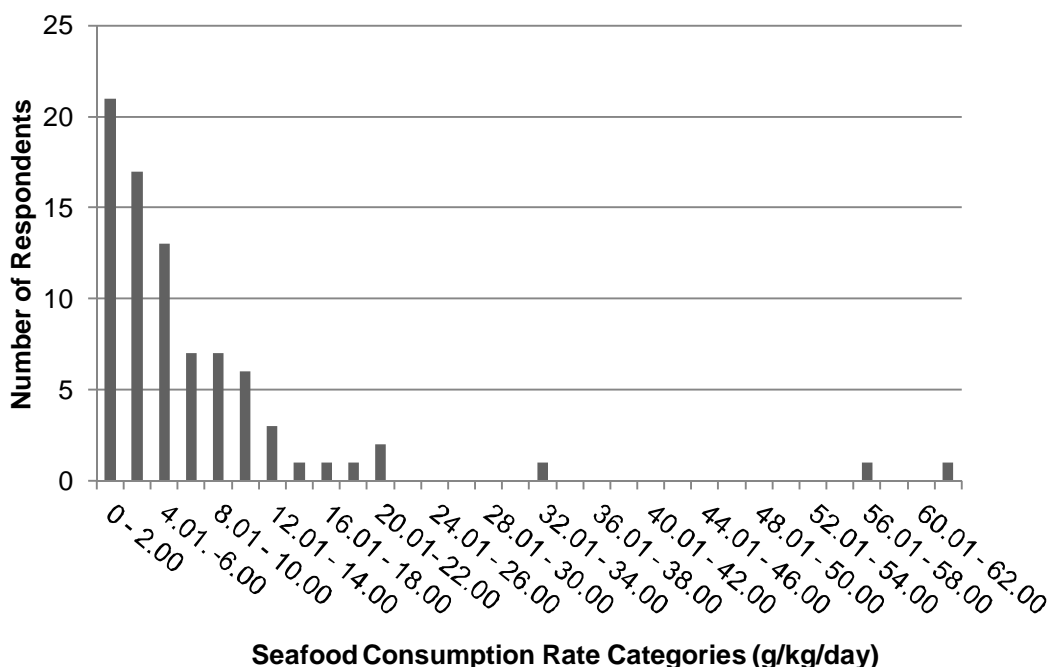


Figure 3.10 Seafood Consumption Rates Including Outliers

Table 3.14 presents the statistics for the Lummi fish consumption rate including observations that are numerically distant from the rest of the data (i.e., outliers) in 1985. The average Lummi seafood consumption rate in 1985, if the outliers are included, was 7.37 g/kg/day or approximately 591 grams per day (g/day) for all seafood consumed; the median seafood consumption rate was 4.41 g/kg/day or approximately 378 g/day.

Table 3.14 Fish Consumption Rates (Including Outliers) (1985)

Lummi Seafood Consumption Rate	N	Median	Mean	S.E.	90 th Percentile	95 th Percentile
g/kg/day	82	4.41	7.37	1.11	13.35	20.57
g/day	82	378.14	590.84	89.05	1,069.59	1,393.32

Because the mean and variance of a sample population estimate can be strongly influenced by extreme values, outliers were removed from the dataset prior to the final calculation of the Lummi fish consumption rate. Removal of outliers was considered because there were a couple of instances where the enumerators volunteered that the results from a particular survey should be treated with caution due to the difficulty they had getting the respondent to frame their answers specifically to address the questions in the way they were asked. Two of these completed surveys resulted in consumption rates between 2.34 and 2.5 pounds per day (lb/day) and a third survey resulted in a consumption rate of approximately 6.5 lb/day. Based on a visual inspection of the histogram of results and discussions with members of the Tribal Advisory Committee about an individual eating 2.33 pounds of seafood (just over 5 salmon fillets per day)

every day for a year, values exceeding the 90th percentile value were considered to be outliers. As a result, any reported seafood consumption rates greater than 1,058 g/day (2.33 lb/day), or 13.08 g/kg/day, were removed from the computation of the final Lummi fish consumption rates. Applying this criterion, nine questionnaires were removed from the final calculation, which reduced the sample size from 82 to 73 for the Lummi fish consumption rate calculation.

After removal of the nine outliers, the final Lummi fish consumption rates were calculated. As shown in Table 3.15, the average Lummi fish consumption rate is 4.73 g/kg/day or approximately 383 g/day for all seafood consumed. Converted to U.S. customary units, the average fish consumption rate is approximately 0.84 pounds per day (lb/day) or 13.5 ounces per day (oz/day). The median fish consumption rate was calculated to be 3.82 g/kg/day or approximately 314 g/day (0.69 lb/day). The 90th percentile consumption rate was 10.03 g/kg/day or approximately 800 g/day (1.76 lb/day); the 95th percentile consumption rate was 11.28 g/kg/day or approximately 918 g/day (2.02 lb/day). Figure 3.11 shows how the seafood consumption rates varied among the respondents.

Table 3.15 Lummi Fish Consumption Rate (Excluding Outliers) (1985)

Lummi Seafood Consumption Rate	N	Median	Mean	S.E.	90th Percentile	95th Percentile
g/kg/day	73	3.82	4.73	0.41	10.03	11.28
g/day	73	314.18	383.18	32.47	799.98	918.49

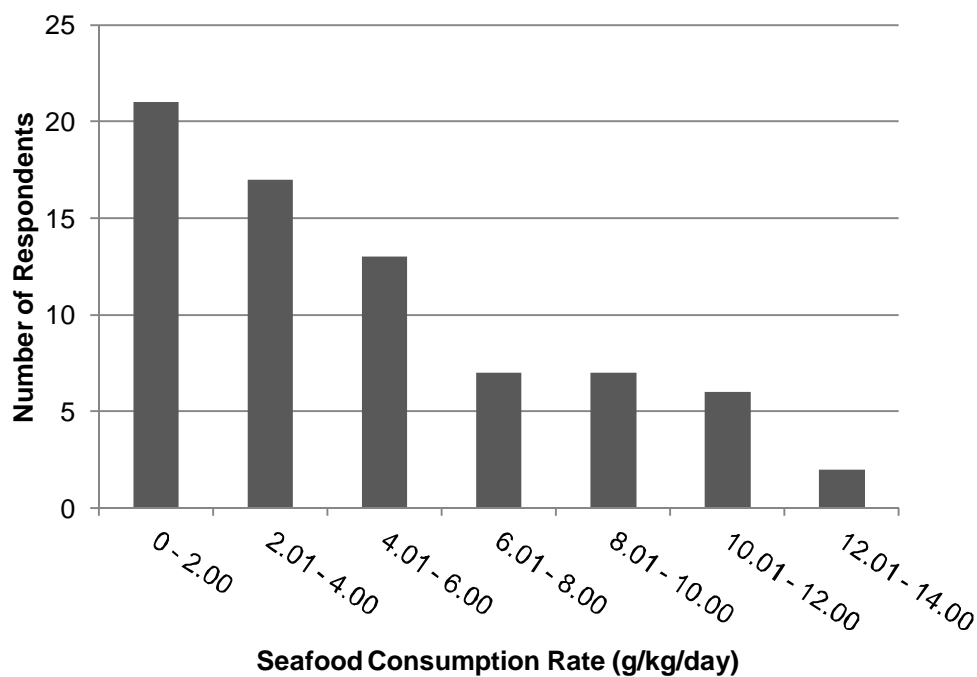


Figure 3.11 Seafood Consumption Rates Excluding Outliers

Seafood Consumption at Home and at Gatherings

Seafood consumption at home and seafood consumption at gatherings were recorded separately and then combined to calculate the final consumption rate. In total, consumption at home contributed approximately 96 percent to the final rate, and consumption at gatherings contributed 4 percent (Table 3.16).

Table 3.16 Seafood Consumption by Meal Context

Meal Context	N	Median (g/kg/day)	Mean (g/kg/day)	Percent of “Total” Consumption	S.E.	90 th Percentile (g/kg/day)	95 th Percentile (g/kg/day)
Gatherings	73	0.09	0.20	4.22%	0.05	0.38	0.57
Home	73	3.74	4.53	95.78%	0.40	9.85	10.88
Total	73	3.82	4.73	100%	0.41	10.03	11.28

Seafood Consumption Rates by Age

As shown in Table 3.17 and Figure 3.12, during 1985 the highest seafood consumption rates were recorded for the 20-29 year age group and the 40-49 year age group. Relatively lower seafood consumption rates were recorded for the 30-39 year and 50 and older age groups.

Table 3.17 Seafood Consumption Rates by Age

Age Category (years 1985)	N	Median (g/kg/day)	Mean (g/kg/day)	S.E.	90 th Percentile (g/kg/day)	95 th Percentile (g/kg/day)
20-29	33	4.71	5.42	0.64	10.88	11.06
30-39	22	3.33	4.14	0.72	8.48	11.69
40-49	11	2.44	4.43	1.19	10.08	10.69
50+	7	4.02	3.82	0.54	4.97	5.31
All Ages	73	3.82	4.73	0.41	10.03	11.28

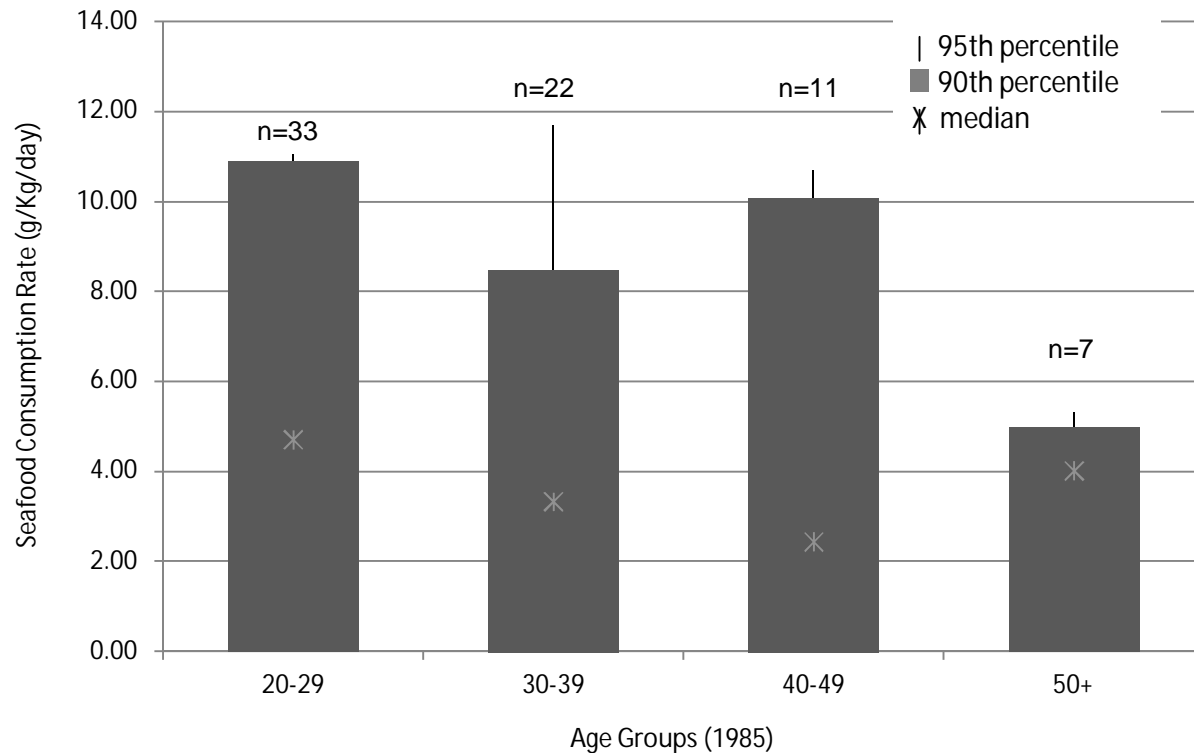


Figure 3.12 Seafood Consumption Rates by Age Group

Meal Composition

Meals eaten at home were recorded by species and the meal sizes of seafood consumed at gatherings was recorded relative to the meal sizes of meals consumed at home. As shown in Table 3.18 and Figure 3.13, the seafood consumed at home was largely comprised of salmon species (75.7 percent). As shown in Table 3.19 and Figure 3.13, Chinook salmon and sockeye salmon combined represented 75.6 percent of the total salmon consumption.

Table 3.18 Average Seafood Composition of Meals at Home

Seafood	Salmon	Other Finfish	Bivalves	Other Invertebrates
100%	75.7%	10.5%	9.3%	4.5%

Table 3.19 Composition of Salmon Portion of Meals at Home

Salmon	Chinook	Sockeye	Coho	Chum	Steelhead	Pink
100%	39.8%	35.8%	11.6%	9.3%	1.9%	1.6%

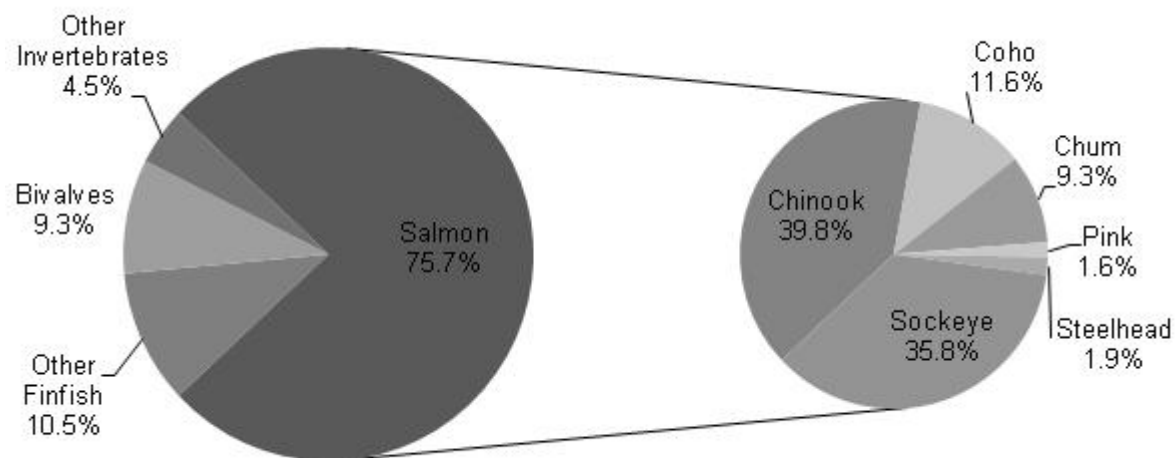


Figure 3.13 Average Composition of Seafood Consumption (Salmon Break-out)

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4. DISCUSSION

4.1. Study Goals

4.1.1. *Sample Size*

The initial goal of 150 completed interviews was derived from an estimate of the number of samples required to achieve 20 percent precision. During the interview phase of the study, it became apparent that, a) 150 completed interviews would not be possible in the available time, and b) fewer interviews would be needed to achieve the 20 percent precision goal. Figure 3.2 illustrates that, after outliers were removed, the average seafood consumption rate stabilized after approximately 30 to 40 samples (interviews) and that a precision better than 20 percent was achieved after approximately 50 interviews had been completed.

4.1.2. *Target Population*

Consistent with the EPA guidance to use consumption rates that adequately protect the most highly exposed populations when developing water quality criteria (EPA 2000), a sample pool of enrolled Lummi tribal members who could be expected to be high seafood consumers was chosen for the study. Through consultation with the Tribal Advisory Committee and the Technical Advisory Committee, and guided by the data of other tribal seafood consumption studies, the target pool for this study was defined as male enrolled tribal members 45 years and older in 2010, living on the Reservation or in neighboring Whatcom County. The majority of male tribal members that were 20 years and older in 1985 were believed to be active fishermen and would have had easy access to seafood. The study results largely confirm this assumption. Of the 82 respondents, 95 percent held a fishing license in 1985 and were active in commercial fishing. All of the respondents were consumers of seafood.

4.2. Potential Biases

4.2.1. *Participation*

The interviewers contacted potential participants from randomized lists of names chosen randomly from the target population. Contact with the participants was made by phone, door-to-door, by visiting tribal facilities and meeting points, and through word of mouth. This varied approach prevented self-selection of the respondents by income status, location, mobility, or family affiliation.

4.2.2. *Recall Bias*

Long-term studies have the potential for recall bias. Although these effects were possible, the questionnaire and interview structure and design minimized these effects by applying approaches shown to improve recall in studies dedicated to survey improvement (see Sections 2.3.2 through 2.3.5). The investigators modified the questionnaire with the support of the Tribal Advisory Committee and the interviewers to accurately reflect seafood consumption and preparation patterns in the Lummi community. Finally, interviewers from the Lummi community were chosen to maximize subject participation and candor.

The interviewers reported that many of the respondents expressed thankfulness after the interview for the opportunity to delve back into the timeframe of 1985, which was a year of

economic and cultural prosperity for the respondents and held positive memories. The use of cognitive interviewing techniques like the personal timeline was successful in focusing the respondents onto a specific time in the past and eliciting memories specific to this year.

4.2.3. Timing

The interviews were conducted over a ten month time span from May 2011 to March 2012. During August, October, and November 2011, interviews did not take place. These times coincide with fishery openings when participants were not available. Individual respondents might have been influenced in their recall of species and amounts eaten by the season they were interviewed. However, for the entire study this potential source of bias was minimized through the distribution of the interviews over the 10-month period.

4.2.4. Self-Reported Weights

The respondents were asked to report their weight in 1985. The weights were used to calculate the final consumption rate which is measured in g/kg/day. During the study design, members of the study team were concerned that the respondents would be uncomfortable giving information about their body weight or under report their body weights. The interviewers reported that none of the respondents displayed hesitancy in relaying their weight in 1985. They reported that while some respondents seemed to have gained weight since 1985, the reported weights seemed in proportion to the stature of the respondents and an expected weight gain with age and a less active lifestyle.

4.3. Origin of Seafood

Human health criteria, which the seafood consumption rates are a part of, are calculated for specific sites in the case of a clean-up project or for a specific region in the case of water quality standards. In order to calculate a seafood consumption rate for a population that is affected by specific waters, only seafood that is harvested from the area is considered. The respondents of the Lummi Seafood Consumption Study reported that on average 97 percent of the seafood they consumed in 1985 originated in local waters, either being harvested by the respondent or by family and friends.

The dependency on local waters is also demonstrated by the fact that even among the most commonly consumed seafood species, several are not usually available in stores (e.g., fresh-water smelt [hooligans], chum salmon, horse clams, butter clams). Approximately 70 percent of the respondents consumed 10 to 25 different species of seafood. Approximately 11 percent of the respondents ate 26 to 45 different species. The diversity of species utilized by the Lummi community reflects the importance of seafood in Lummi culture and the persistence of traditional lifestyles.

By 2011/2012, the amount of consumed seafood that was reported to originate from local waters decreased from 97 percent to 87 percent, but local waters still remain by far the most common source of the consumed seafood. The consumed seafood acquired from other sources increased to 5 percent from stores and 8 percent from restaurants. This shift could be explained by the fact that only 73 percent of respondents held a fishing license in 2011/2012 as opposed to 95 percent in 1985. The respondents that were not active fishers anymore had to rely also on outside seafood sources. This assumption is supported by the fact that 39 percent of the respondents

reported that family and friends gave less seafood in 2011/2012, which could be a function of advanced age and diminishing social connections.

4.4. Environmental Baseline

For this study, 1985 was chosen as an environmental baseline to identify a realistic seafood consumption rate when abundance and availability of seafood were not primary limiting factors for consumption. As shown in Figure 1.5, the harvest of salmon, the main staple of the Lummi seafood diet, decreased by approximately 50 percent between the 1980 to 1985 time period and the 2006 to 2010 time period. The suppression of current seafood consumption relative to consumption in 1985 was confirmed by the results of this study. Sixty-seven percent of the respondents reported that they ate less seafood in 2011/2012 than in 1985, and 84 percent reported that they would like to eat more seafood. The same number of respondents also reported that the reason for consuming less seafood was not the preference of other foods over seafood.

In response to the interview questions listing possible reasons for the decreased seafood consumption, 50 percent of the respondents reported that their family does not own a boat or gear anymore, 77 percent reported that there are fewer places to fish because of diminished access (defective boat ramps, not allowed to fish in certain areas, historic fishing areas blocked or filled in), 80 percent of the respondents reported that they harvested less shellfish since the shellfish beds in Portage Bay on the Lummi Reservation had been closed from 1996 to 2006, and 79 percent of the respondents reported that they fish less because they had to take another job to support themselves. Other reasons given by the respondents for fishing less during recent years relative to 1985 included age/retirement/physical restrictions, less availability of fish, and restrictive harvest management. As a consequence, only 73 percent of the respondents held a fishing license in 2011/2012 as opposed to 95 percent in 1984/1985/1986.

The diminished availability of salmon and other finfish have increased the importance of shellfish, particularly Dungeness crab, for the Lummi economy and also the Lummi seafood diet. Because the seafood consumption study focused on consumption rates during 1985, this change was not captured in this survey.

The results of the Lummi Seafood Consumption Study confirm that adopting current conditions as the environmental baseline is not protective of Treaty rights, cultural sovereignty, or tribal interests that include the promotion of the traditional diet and the recovery of salmon and shellfish populations.

4.5. Seafood Consumption Rates

4.5.1. *Seafood Consumption Rates by Age*

The study results did not show a consistent pattern of seafood consumption by age group (Table 3.17). Respondents in the age groups of 20 to 29 years and 40 to 49 years (1985 age) consumed the most seafood, while the consumption rate for 30 to 39 year olds was lower. The smallest consumption rate was recorded for respondents 50 years and older in 1985. Reasons for the lower seafood consumption rate in older respondents might be that they worked less physically strenuous jobs than the younger respondents and consumed less food in general as a result, or the recall of the older respondents might be biased by their current lower food intake.

4.5.2. *Seafood Consumption by Seafood Species Group*

Most of the seafood consumed at home by respondents in 1985 was salmon (75.7 percent), with the remainder split between “other finfish” (10.5 percent), “bivalves” (9.3 percent) and “other invertebrates” (4.5 percent). Within the “salmon” category, 39.8 percent was Chinook salmon, 35.8 percent was sockeye salmon, 11.6 percent was coho salmon, 9.3 percent was chum salmon, 1.9 percent was steelhead, and 1.6 percent was pink salmon (Figure 3.13). Salmon is clearly the staple of the Lummi seafood diet and is consumed fresh in season and also preserved extensively through smoking, canning, and freezing. Besides the meat with or without skin, other parts of the fish (i.e., head and eggs) are commonly consumed. Salmon is eaten fried, baked, or barbequed and used for soup, fish hash, and sandwiches. Salmon is an integral part of the Lummi economy and culture, as shown, for instance, in the First Salmon Ceremony that is celebrated in May to honor the returning salmon.

The decrease in salmon abundance as documented in the catch data for the Lummi fishing fleet (Figure 1.5) and the reported shift in fishery emphasis by the respondents (Figure 3.5) leads to the assumption that the consumption ratios for salmon, other finfish, and shellfish would be different in today’s home meals. The percentage of bivalves (e.g., clams and oysters) in the diet would be higher today, as bivalves are easily available for subsistence harvest from the Reservation tidelands and other tidelands within the Lummi Nation’s usual and accustomed area. The halibut and Dungeness crab fisheries increased at the same time as the bivalve fishery, but these species are commercially more valuable and might not “trickle down” to home use as much.

4.5.3. *Comparison with Other Seafood Consumption Rates*

Several other northwest tribes and population groups have conducted seafood consumption surveys. In comparison with these studies, the Lummi Seafood Consumption Study resulted in the highest seafood consumption rates of all studies (Table 4.1 and Figure 4.1). The Lummi study targeted a specific high consuming subpopulation of the tribal community. Comparison with the available data from other surveys about similar populations shows that the Lummi seafood consumption rates are very similar to the consumption rates for “all men” and “men 45-54 years” of the Suquamish Tribe (Table 4.2 and Figure 4.2). However, the seafood consumption study for the Suquamish Tribe did not remove outliers from the sampled population.

The seafood consumption of the Lummi Nation and the Suquamish Tribe differs in the ratio of consumed species. The Lummi respondents reported a seafood composition of approximately

86 percent finfish and 14 percent shellfish while the Suquamish respondents reported a diet consisting of 38 percent finfish and 62 percent shellfish (Suquamish 2000). While the overall seafood consumption rates for the Tulalip Tribes and Squaxin Island Tribe are lower than the Lummi rate (Toy et al. 1996), the seafood composition of the Squaxin Island Tribe is similar to the Lummi Nation's ratios. The Squaxin Island Tribe respondents consumed 78 percent finfish and 22 percent shellfish. The respondents for the Tulalip Tribes consumed 55 percent finfish and 45 percent shellfish (Table 4.3 and Figure 4.3).

These differences demonstrate variations between the consumption patterns of different tribal populations around Puget Sound. Some of this variation may be due to the environmental baseline used for the different studies. The Lummi study used 1985 as the environmental baseline whereas the other studies recorded seafood consumption at the time of the surveys.

Table 4.1 Comparison of Seafood Consumption Rates

Descriptive Statistic	Columbia River Tribes (g/day)	Tulalip Tribes (g/day)	Squaxin Island Tribe (g/day)	Suquamish Tribe (g/day)	Asian & Pacific Islanders (g/day)	Lummi Nation (g/day)
Mean	63	72	73	214	117	383
Median	40	45	43	132	78	314
90th Percentile	113	186	193	489	236	800
95th Percentile	176	244	247	796	306	918

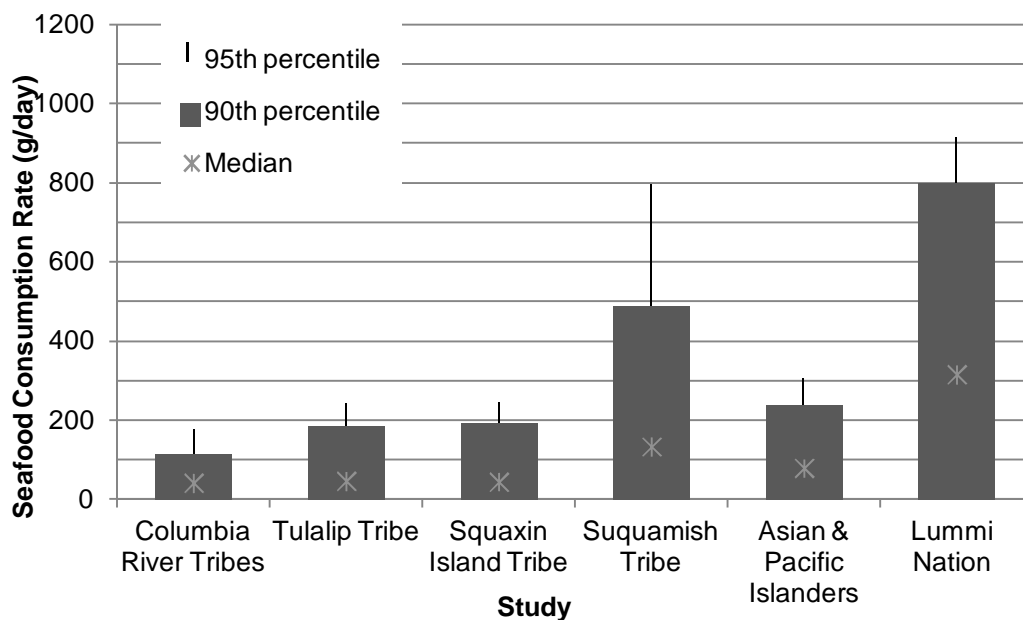


Figure 4.1 Comparison of Seafood Consumption Rates

Table 4.2 Comparison of Seafood Consumption Rates of Male Tribal Members

	Suquamish Tribe (Men 43-54)	Lummi Nation (Men 43-54)	Suquamish Tribe (All Men)	Lummi Nation (All Men)	Tulalip Tribes (All Men)	Squaxin Island Tribe (All Men)
Median (g/kg/day)	4.56	3.44	2.47	3.82	0.62	0.78
90th Percentile (g/kg/day)	10.29	7.10	8.56	10.03	2.55	1.92
95th Percentile (g/kg/day)	10.29	8.59	8.56	11.28	3.30	2.92

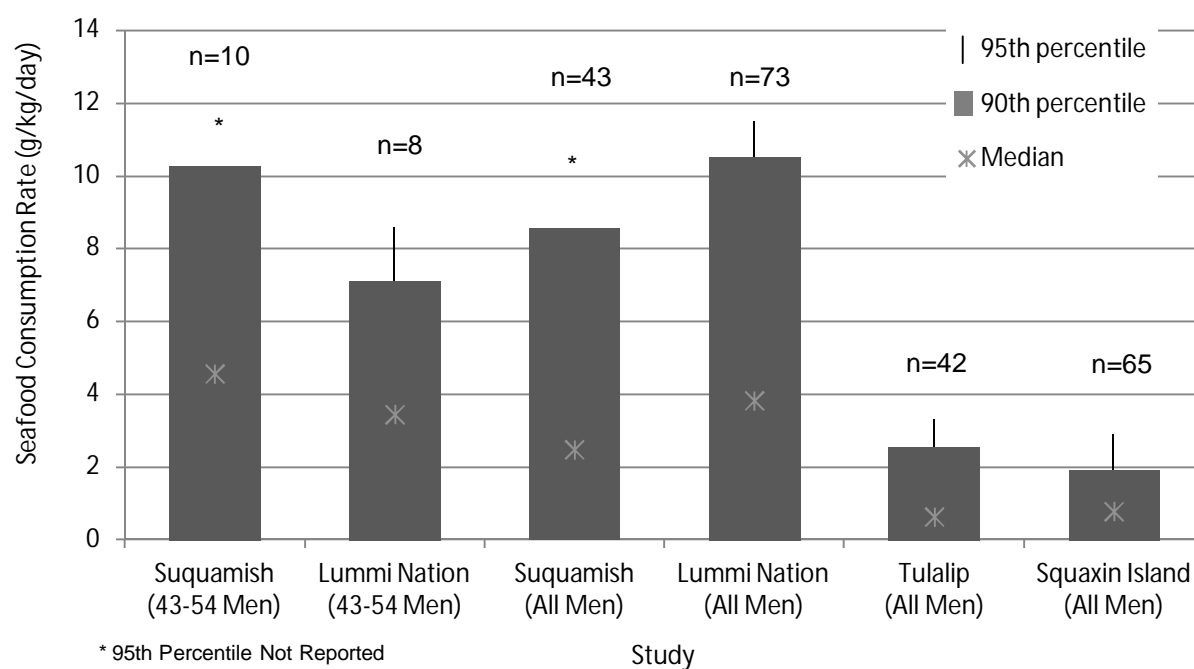


Figure 4.2 Comparison of Seafood Consumption Rates of Male Tribal Members

Table 4.3 Seafood Ratios for Different Tribes

Species Group Consumption	Tulalip Tribes	Squaxin Island Tribe	Suquamish Tribe	Lummi Nation
Shellfish	45%	22%	62%	14%
Finfish	55%	78%	38%	86%

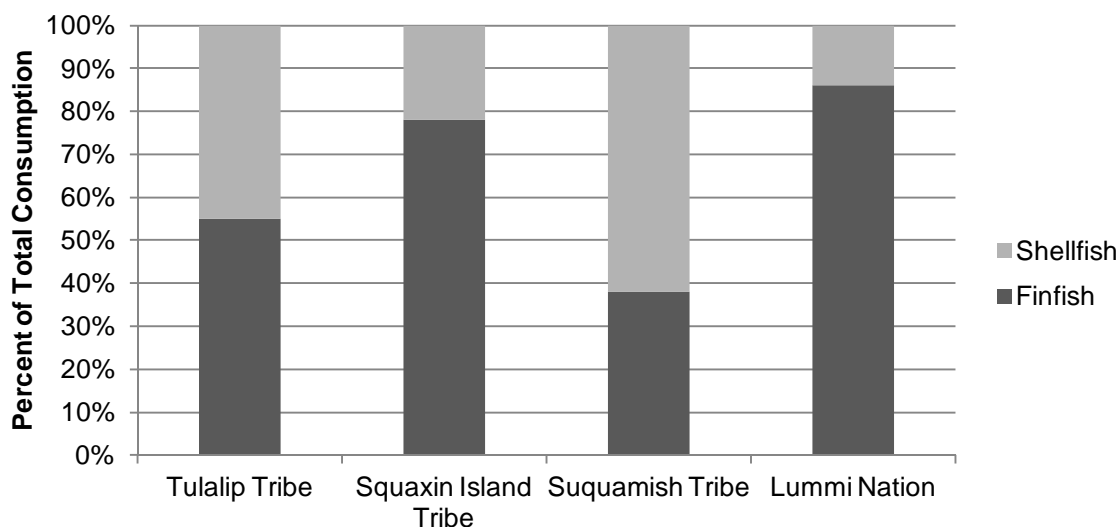


Figure 4.3 Seafood Ratios for Different Tribes

Further comparison with the existing seafood consumption rate values used for water quality standards and sediment clean-up regulations nationally and in Washington and Oregon State (Table 4.4 and Figure 4.4) emphasizes the need for a Lummi-specific value that is protective of the public health of the Lummi Nation. Figure 4.5 illustrates the size relations of three selected seafood consumption rates.

Table 4.4 Comparison with National and State Seafood Consumption Rates

Seafood Consumption Rates	g/day
CWA* 1980, Washington State WQS* General Population	6.5
EPA* 2000, General Populations	17.5
EPA 2000, Subsistence Populations; Lummi WQS	142.4
Washington State MTCA* Clean-up Standard	54
Oregon State Water Quality Standard	175
Lummi Average Seafood Consumption Rate	383

* CWA: Clean Water Act

EPA: Environmental Protection Agency

MTCA: Model Toxics Control Clean-Up Regulation

WQS: Water Quality Standard

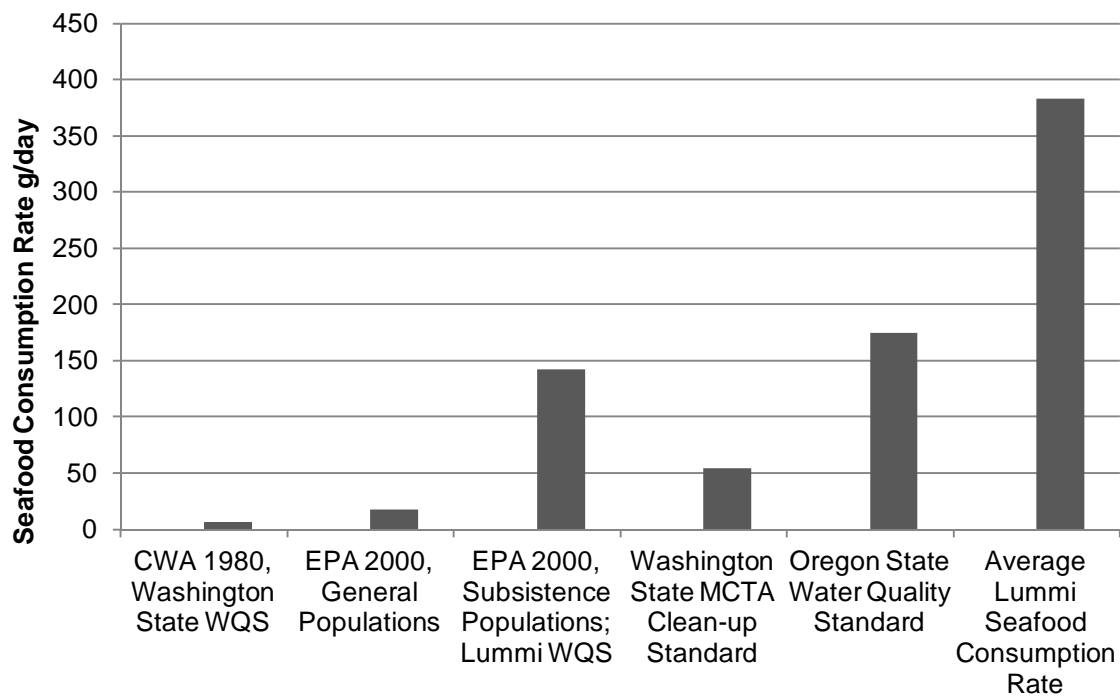


Figure 4.4 Comparison with National and State Seafood Consumption Rates



Figure 4.5 Relative Sizes of Seafood Consumption Portions

5. CONCLUSION

The Lummi Seafood Consumption Study resulted in a Lummi Nation average fish consumption rate of 4.73 g/kg/day, which is approximately 383 g/day (0.84 lb/day or 13.5 oz/day) for all seafood consumed; the median seafood consumption rate was calculated to be 3.82 g/kg/day or approximately 314 g/day (0.69 lb/day or 11 oz/day); the 90th percentile seafood consumption rate was calculated to be 10.03 g/kg/day or approximately 800 g/day (1.76 lb/day or 28.2 oz/day); and the 95th percentile seafood consumption rate was calculated to be 11.28 g/kg/day or approximately 918 g/day (2.02 lb/day or 32.4 oz/day). These values confirm the assumption of this study that the members of the Lummi Nation consume considerably more seafood than the average American population. In the judgment of the Tribal Advisory Committee, a fish consumption rate for the Lummi Nation must be no less than the average value resulting from this study in order to be protective of the public health and the Lummi Nation *Sche lang en* (“Way of Life”).

These Lummi-specific fish consumption rates will be used to revise the Lummi Nation water quality standards that were adopted by the Lummi Nation in 2007 and approved by the EPA in 2008. In addition, this seafood consumption rate will be used to inform the debate as the State of Washington revisits the fish consumption rate used for both their water quality standards and sediment clean-up standards. The Lummi Nation seafood consumption rate will also be used to support a reliable risk assessment for Lummi tribal members in an evaluation of clean-up options for contaminated sites along Bellingham Bay.

6. ACRONYMS

ATSDR	Agency for Toxic Substances and Disease Registry
AWQC	Ambient Water Quality Criteria
CAPI Software	Computer-Assisted Personal Interviewing Software
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CDC	Centers for Disease Control and Prevention
CRITFC	Columbia River Inter-Tribal Fishing Commission
C&S	Ceremonial and Subsistence
CWA	Clean Water Act
DOH	Department of Health
EPA	Environmental Protection Agency
IRB	Institutional Review Board
LIBC	Lummi Indian Business Council
LNR	Lummi Natural Resources Department
MTCA	Model Toxics Control Act
NEJAC	National Environmental Justice Advisory Council
NWIC	Northwest Indian College
RCW	Revised Code of Washington
RI/FS	Remedial Investigation/Feasibility Study
S.E.	Standard Error
SD	Standard Deviation
U&A	Usual and Accustomed Grounds and Stations
U.S.	United States
USDA	United States Department of Agriculture
WA	Washington State
WQS	Water Quality Standards
WRIA	Water Resource Inventory Area

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APPENDIX A – QUESTIONNAIRE

Lummi Nation Diet Study 2011

QUESTIONNAIRE



ID #:

Interviewer:

A INTRODUCTION

Hello, my name is _____, and I represent the Lummi Natural Resources Department. We would like to thank you for taking part in the Lummi Diet Study. With your help, the Lummi Nation will learn more about how much seafood is eaten in the community. Because pollution can be concentrated in seafood, the results of the study will support new water quality standards for Lummi and for Washington State. The water quality standards will limit how much pollution can be in the waters of the Reservation and beyond. This will support our efforts to protect the health of Lummi tribal members.

In addition, you will receive a \$25 check if you complete the interview.

All of the information you give us during this interview is confidential. Your responses to the questions will be combined with those from other interviews, so that your answers cannot be tracked back to you. I will ask you to sign a form that states that you consented to this interview and that this interview took place. The form will be kept separately from this questionnaire, so that your name cannot be connected to your answers.

The results of this survey will be published in the Squol Quol and a report to the Council. This interview will take about 2 hours.

(Take out the Informed Consent Form, have the respondent read the form or read it to them, and have the respondent sign it. If they don't want to sign, the interview is ended.)

Let me give you an overview over the interview:

I will ask you about the seafood you ate in 1985. Around 1985, Lummi fishers had record harvests and fish was readily available in the community. Since then, less fish and shellfish has been available even though we had a good year in 2010. We want to know how much seafood people eat when there is a lot of seafood around. That is the reason we will ask you about 1985.

First, I will ask you some general questions like your age, if you harvest finfish or shellfish, and what was your weight in 1985. We need your weight to calculate the final consumption rate for Lummi tribal members.

We will then look at events that took place in 1985, to make it easier to remember what was going on during that time and what you ate.

Then I will ask you about a list of finfish and shellfish. We would like to learn how much and how often you ate any of those. This will be the main part of the interview. Let's start with the general questions.

B DESCRIPTIVE DATA

What is your gender?	Male	Female	(circle one)
How old are you?			(record age)
Do you eat seafood?	Yes	No	(circle one)

Would you like to eat more seafood than you are eating now?	Yes	No	(circle one)
Do you currently hold a fishing license?	Yes	No	(circle one)
When you fish now, how much of that is commercial? How much of that is ceremonial and/or subsistence (CNS)?			% % (The two numbers should add up to 100%)
Which is your primary fishery today?	Salmon	Halibut	(circle all that apply)
	Crab	Sea Cucumber	
	Shrimp	Sea Urchin	
	Clams		
How much of the fish you eat today comes from • local waters (caught yourself or by family or friends) • a store • or restaurants?			% % % (The three numbers should add up to 100%)

Did you hold a fishing license in 1984, 1985, or 1986?	Yes	No	(circle one)
When you fished in 1985, how much of that was commercial? How much of that was ceremonial and/or subsistence (CNS)?			% % (The two numbers should add up to 100%)
Which was your primary fishery in 1985?	Salmon	Halibut	(circle all that apply)
	Crab	Sea Cucumber	
	Shrimp	Sea Urchin	
	Clams		

B DESCRIPTIVE DATA continued

How much of the fish you ate in 1985 came from		(The three numbers should add up to 100%)
• local waters (caught yourself or by family or friends)	%	
• a store	%	
• or restaurants?	%	

What was your weight in 1985 as best as you can remember?	lb			(record weight)
Did you eat more or less seafood in 1985 than now?	More	Less	No Change	(circle one)
I am going to ask you some questions about some possible reasons why you are eating more or less seafood now:				
Family/friends give fish/shellfish	less often?	more often?	No change	(circle one)
Elder's lunches with fish are served	less often?	more often?	No change	
Your family used to have a boat or gear but does not own a boat or gear anymore:	True	False		
There are fewer places to fish because there is no access anymore (for example: defective boat ramps, not allowed to fish in certain areas, historic fishing areas blocked or filled in):	True	False		
You collect less shellfish since the shellfish beds in Portage Bay were closed:	True	False		
You eat less fish because you prefer other foods:	True	False		
You fish less because you had to take another job to support yourself:	True	False		
Any other reason?				

C TIMELINE

Let's do an exercise together to jog your memory about 1985.

I have here a list of events that were in the news in 1985, and a list of events in the Squol Quol of 1985.

Let's try to fill in your personal timeline. Remembering the important events of your life - like weddings, places of work, places where you lived - usually makes it easier to remember smaller matters like what you ate. These pages will remain with you and not be handed in. This is just a way to jog your memory.

(Take out the pre-printed timeline and spend about 10 minutes on remembering life events of the participant and filling them in on the timeline form. The timeline remains with the participant and will not be handed in.)

D GATHERINGS

I will ask you first about what you ate at community gatherings. The reason for that is that we all eat differently at a gathering than at home.

With gatherings we mean events like holidays, funerals, namings, weddings, powwows, smokehouse, the Stommish festival.

(Go to the next page)

D Gatherings

Circle one for yes/no questions

S1 In 1985, did you go to community gatherings?

Yes / No

→ go to first fish species.

S2 In 1985, how often did you go to community gatherings?
You can answer times per week, month or year.

Times per	Week	Month	Year
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

S3 Please tell me if you ate any of the fish and shellfish on the list that I am going to read to you now: (Refer to Seafood ID booklet .)

Yes / No	1 Chinook (King, Blackmouth)	Yes / No	20 Pollock	Yes / No	39 Scallops
Yes / No	2 Sockeye	Yes / No	21 Sturgeon	Yes / No	40 Razor Clams
Yes / No	3 Coho (Silver)	Yes / No	22 Sable Fish (Black Cod)	Yes / No	41 Mussels
Yes / No	4 Chum (Dog)	Yes / No	23 Shark	Yes / No	42 Abalone
Yes / No	5 Pink (Humpies)	Yes / No	24 Greenling	Yes / No	43 Limpets (China Caps)
Yes / No	6 Steelhead	Yes / No	25 Rockfish	Yes / No	44 Barnacles
Yes / No	7 Surf Smelt (Saltwater Smelt)	Yes / No	26 Mackerel	Yes / No	45 Dungeness Crab
Yes / No	8 Hooligans (Longfin Smelt, River Smelt)	Yes / No	27 Skate	Yes / No	46 Red Rock Crab
Yes / No	9 Herring	Yes / No	28 Sting Ray	Yes / No	47 Shrimp
Yes / No	10 Grunters	Yes / No	29 Eel	Yes / No	48 Crayfish
Yes / No	11 Bullhead	Yes / No	30 Catfish	Yes / No	49 Squid
Yes / No	12 Halibut	Yes / No	31 Lamprey	Yes / No	50 Octopus
Yes / No	13 Flatfish (Flounders + Sole)	Yes / No	32 Shad	Yes / No	51 Sea Urchin (Squitsi)
Yes / No	14 Cod	Yes / No	33 Horse Clams	Yes / No	52 Sea Cucumber
Yes / No	15 Lingcod	Yes / No	34 Butter Clams	Yes / No	53 Moon Snail
Yes / No	16 Tuna	Yes / No	35 Geoducks (Ducks)	Yes / No	54 Chiton ("Kaiton")
Yes / No	17 Bass	Yes / No	36 Manila Clams (Steamers, Littlenecks)	Yes / No	Other:
Yes / No	18 Trout	Yes / No	37 Oysters	Yes / No	Other:
Yes / No	19 Perch (Saltwater)	Yes / No	38 Cockles	Yes / No	

S4 At gatherings, did you eat... more — less — the same amount ... than at home?

Circle one. If the answer is "the same", skip the next question.

S5 If so, how much more/less did you eat at a gathering?

E QUESTIONNAIRE

I am now going to ask you questions about what kinds of seafood you ate in 1985. I will ask how much and how often you ate them. This is how the questionnaire works:

Together we will check a booklet with photos of each seafood species to make sure that we are talking about the same fish or shellfish. I will show you portion models and you can tell me how much you usually ate at one meal of that fish or shellfish.

Some seafoods you may only have eaten at a certain time of year, for example fresh salmon only during the time that the salmon was harvested. In that case, please tell me from what month to what month, or if you ate the fish or shellfish all year round. Then please tell me how often you ate this seafood per day, week, or month.

Most of the time, there are separate questions for different ways of eating a fish or shellfish like the head, the meat, or the eggs, or soup. I will also ask you if you ate the fish fresh or if it was frozen or canned beforehand.

It is important that you answer as accurately as you can. Take your time. Ask me if you have any questions or if you don't understand the question.

Let us start with salmon. *(Go to first fish sheet (Chinook Salmon) and continue to last questionnaire sheet.)*

CHINOOK 1

Fish 1

All the following questions are going to be about how much seafood you ate at home in 1985.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Chinook in 1985?

Yes / No

→ go to next fish species.

How Much?

Q2 How much Chinook did you normally eat in one meal at home? Let me read you the options.

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	01	
Meat/ Fillet without skin	01	
Head	05	
Eggs	06	
Fish Hash	08	
Sandwich	09	
Soup/Broth/Chowder	10	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

CHINOOK 2

Fish 1

I am going to ask you now separately about fresh-caught , frozen, smoked, and canned Chinook.

Part 1 Fresh Chinook

Circle one for yes/no questions.

Q3 Did you eat freshly caught Chinook (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

go to next part.

Q4 Did you eat fresh Chinook only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Chinook during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Chinook

Circle one for yes/no

Q6 Did you eat Chinook that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Chinook only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Chinook during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Smoked Chinook

Circle one for yes/no questions.

Q9 Did you eat smoked Chinook?

Yes / No

go to next part.

How Often?**Q1** Did you eat smoked Chinook only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat smoked Chinook during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Smoked**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4 Canned Chinook

Circle one for yes/no questions.

Q1 Did you eat canned Chinook?

Yes / No

go to next part.

How Often?**Q1** Did you eat canned Chinook only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat canned Chinook during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Canned**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Sockeye in 1985?

Yes / No

→ go to next fish species.

How Much?

Q2 How much Sockeye did you normally eat in one meal at home? Let me read you the options.

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	01	
Meat/ Fillet without skin	01	
Head	05	
Eggs	06	
Fish Hash	08	
Sandwich	09	
Soup/Broth/Chowder	10	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

SOCKEYE 2

Fish 2

I am going to ask you now about freshly caught, frozen, smoked, and canned Sockeye.

Part 1 Fresh Sockeye

Circle one for yes/no questions.

Q3 Did you eat freshly caught Sockeye (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Sockeye only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Sockeye during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Sockeye

Circle one for yes/no questions.

Q6 Did you eat Sockeye that was stored frozen before cooking it?

Yes / No	→ go to next part.
----------	--------------------

How Often?

Q7 Did you eat previously frozen Sockeye only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D	ALL	Circle one.
-------------------------	-----	-------------

Q8 How often did you eat previously frozen Sockeye during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Smoked Sockeye

Circle one for yes/no questions.

Q9 Did you eat smoked Sockeye?

Yes / No

go to next part.

How Often?

Q1 Did you eat smoked Sockeye only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat smoked Sockeye during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Smoked

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4 Canned Sockeye

Circle one for yes/no questions.

Q1 Did you eat canned Sockeye?

Yes / No

go to next part.

How Often?

Q1 Did you eat canned Sockeye only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat canned Sockeye during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Canned

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Coho in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Coho did you normally eat in one meal at home?
Let me read you the options.

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	01	
Meat/ Fillet without skin	01	
Head	05	
Eggs	06	
Fish Hash	08	
Sandwich	09	
Soup/Broth/Chowder	10	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught, frozen, smoked, and canned Coho.

Part 1 Fresh Coho

Circle one for yes/no questions.

Q3 Did you eat freshly caught Coho (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Coho only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

Q5 How often did you eat fresh Coho during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Coho

Circle one for yes/no questions.

Q6 Did you eat Coho that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Coho only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Coho during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Smoked Coho

Circle one for yes/no questions.

Q9 Did you eat smoked Coho?

Yes / No

go to next part.

How Often?**Q1** Did you eat smoked Coho only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat smoked Coho during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Smoked**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4 Canned Coho

Circle one for yes/no questions.

Q1 Did you eat canned Coho?

Yes / No

go to next part.

How Often?**Q1** Did you eat canned Coho only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat canned Coho during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Canned**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Chum in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Chum did you normally eat in one meal at home?
Let me read you the options.

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	01	
Meat/ Fillet without skin	01	
Head	05	
Eggs	06	
Fish Hash	08	
Sandwich	09	
Soup/Broth/Chowder	10	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about smoked Chum. Please let me know if you eat Chum fresh, frozen, or canned too.

Part 1 Smoked Chum

Circle one for yes/no questions.

Q3 Did you eat smoked Chum in 1985?

How Often?

Yes / No

go to next part.

Q4 Did you eat smoked Chum only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat smoked Chum during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Smoked

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2

Q6 Please tell me if you eat Chum also fresh, stored frozen, or canned.

None Fresh Frozen Canned

Fill in an extra sheet if the respondent used an additional preservation method.

PINK (HUMPIES) 1 Fish 5

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Pink in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Pink did you normally eat in one meal at home?
Let me read you the options.

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	01	
Meat/ Fillet without skin	01	
Head	05	
Eggs	06	
Fish Hash	08	
Sandwich	09	
Soup/Broth/Chowder	10	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught, frozen, smoked, and canned Pink.

Part 1 Fresh Pink

Circle one for yes/no questions.

Q3 Did you eat freshly caught Pink (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Pink only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Pink during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Pink

Circle one for yes/no questions.

Q6 Did you eat Pink that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Pink only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Pink during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Smoked Pink

Circle one for yes/no questions.

Q9 Did you eat smoked Pink?

Yes / No

go to next part.

How Often?

Q1 Did you eat smoked Pink only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat smoked Pink during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Smoked

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4 Canned Pink

Circle one for yes/no questions.

Q1 Did you eat canned Pink?

Yes / No

go to next part.

How Often?**Q1** Did you eat canned Pink only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat canned Pink during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Canned**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Steelhead in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Steelhead did you normally eat in one meal at home? Let me read you the options.

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	01	
Meat/ Fillet without skin	01	
Head	05	
Eggs	06	
Fish Hash	08	
Sandwich	09	
Soup/Broth/Chowder	10	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught, frozen, smoked, and canned Steelhead.

Part 1 Fresh Steelhead

Circle one for yes/no questions.

Q3 Did you eat freshly caught Steelhead (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Steelhead only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

Q5 How often did you fresh Steelhead this during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Steelhead

Circle one for yes/no questions.

Q6 Did you eat Steelhead that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Steelhead only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Steelhead during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Smoked/Kippered Steelhead

Circle one for yes/no questions.

Q9 Did you eat smoked Steelhead?

Yes / No

go to next part.

How Often?**Q1** Did you eat smoked Steelhead only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat smoked Steelhead during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Smoked**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4 Canned Steelhead

Circle one for yes/no questions.

Q1 Did you eat canned Steelhead?

Yes / No

go to next part.

How Often?**Q1** Did you eat canned Steelhead only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat canned Steelhead during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Canned**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Broth/Chowder		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SURF SMELT (SALTWATER SMELT) 1 Fish 7

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Surf Smelt in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Surf Smelt did you normally eat in one meal at home? Let me read you the options.

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2x, 1x, 2x, etc.) or Count of Fish for Whole Fish
Whole Fish	13	
Eggs	07	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught, frozen, and smoked Surf Smelt.

Part 1 Fresh Surf Smelt

Circle one for yes/no questions.

Q3 Did you eat freshly caught Surf Smelt (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Surf Smelt only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

Q5 How often did you eat fresh Surf Smelt during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Surf Smelt

Circle one for yes/no questions.

Q6 Did you eat Surf Smelt that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Surf Smelt only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Surf Smelt during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Smoked Surf Smelt

Circle one for yes/no questions.

Q9 Did you eat smoked Surf Smelt?

Yes / No

go to next part.

How Often?**Q1** Did you eat smoked Surf Smelt only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat smoked Surf Smelt during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Smoked**

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4**Q1** Please tell me if you eat this fish also canned.

Yes / No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

HOOLIGANS (LONGFIN SMELT, RIVER SMELT) 1 Fish 8

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Hooligans in 1985?

Yes / No

go to next fish

How Much?

Q2 How much Hooligan did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2x, 1x, 2x, etc.) or Count of Fish for Whole Fish
Whole Fish	12	
Eggs	07	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught, frozen, and smoked Hooligans.

Part 1 Fresh Hooligans

Circle one for yes/no questions.

Q3 Did you eat freshly caught Hooligans (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Hooligans only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Hooligans during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Hooligans

Circle one for yes/no questions.

Q6 Did you eat Hooligans that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Hooligans only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Hooligans during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Smoked Hooligans

Circle one for yes/no questions.

Q9 Did you eat smoked Hooligans?

Yes / No

go to next part.

How Often?**Q1** Did you eat smoked Hooligans only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat smoked Hooligans during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Smoked**

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4**Q1** Please tell me if you eat this fish also canned.

Yes / No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

HERRING 1

Fish 9

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Herring in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Herring did you normally eat in one meal at home?

Food Model # Amount (1/2, 1, 2, etc.) or
Count of Fish for Whole Fish

Whole Fish	13	
Eggs	07	
Other:		
Other:		
Other:		

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

Use this space if you need space to describe "other" meals.

Description of "Other":

HERRING 2

Fish 9

I am going to ask you now about freshly caught, frozen and smoked Herring.

Part 1 Fresh Herring

Circle one for yes/no questions.

Q3 Did you eat freshly caught Herring (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Herring only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Herring during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Herring

Circle one for yes/no questions.

Q6 Did you eat Herring that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Herring only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Herring during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Smoked Herring

Circle one for yes/no questions.

Q9 Did you eat smoked Herring?

Yes / No

go to next part.

How Often?**Q1** Did you eat smoked Herring only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat smoked Herring during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Smoked**

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4**Q1** Please tell me if you eat this fish also canned.

Yes / No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Grunters in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Grunter did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Whole Fish	14	
Eggs	07	
Soup/Chowder/Broth	10	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Grunter.

Part 1 Fresh Grunter

Circle one for yes/no questions.

Q3 Did you eat freshly caught Grunter (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Grunter only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

Q5 How often did you eat fresh Grunter during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Broth		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Grunter

Circle one for yes/no questions.

Q6 Did you eat Grunter that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Grunter only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Grunter during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Broth		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Bullhead in 1985?

Yes / No

→ go to next fish

Q2 How much Bullhead did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers “other”, please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Whole Fish	15	
Eggs	07	
Soup/Chowder/Broth	10	
Other:		
Other:		
Other:		

Use this space if you need space to describe “other” meals.

Description of “Other”:

I am going to ask you now about freshly caught and frozen Bullhead.

Part 1 Fresh Bullhead

Circle one for yes/no questions.

Q3 Did you eat freshly caught Bullhead (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Bullhead only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Bullhead during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Broth		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Bullhead

Circle one for yes/no questions.

Q6 Did you eat Bullhead that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Bullhead only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Grunter during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Whole Fish		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Broth		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Halibut in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Halibut did you normally eat in one meal at home?
Let me read you the options.

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	02	
Meat/ Fillet without skin	02	
Soup/Chowder/Broth	10	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Halibut.

Part 1 Fresh Halibut

Circle one for yes/no questions.

Q3 Did you eat freshly caught Halibut (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Halibut only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

Q5 How often did you eat fresh Halibut during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Broth		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Halibut

Circle one for yes/no questions.

Q6 Did you eat Halibut that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Halibut only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Halibut during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Broth		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Smoked Halibut

Circle one for yes/no questions.

Q9 Did you eat smoked Halibut?

Yes / No

go to next part.

How Often?**Q1** Did you eat smoked Halibut only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat smoked Halibut during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Smoked**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Broth		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4**Q1** Please tell me if you eat this fish also canned.

Yes / No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of these fish.

Circle one for yes/no questions.

Q1 Did you eat Flounders and/or Sole in 1985?

Yes / No

go to next fish

How Much?

Q2 How much Flounder and/or Sole did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

FLOUNDERS AND/OR SOLE 2 Fish 13

I am going to ask you now about freshly caught and frozen Flounders and/or Sole.

Part 1 Fresh Flounders and/or Sole Circle one for yes/no questions.

Q3 Did you eat freshly caught Flounders and/or Sole (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Flounders and/or Sole only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Flounders and/or Sole during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Flounders and/or Sole Circle one for yes/no questions.

Q6 Did you eat Flounders and/or Sole that was stored frozen before cooking it?

Yes / No → go to next part.

↓

How Often?

Q7 Did you eat previously frozen Flounders and/or Sole only during certain months of the year, or all year around?
Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL Circle one.

Q8 How often did you eat previously frozen Flounders and/or Sole during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Cod in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Cod did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Soup/Chowder/Broth	10	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Cod.

Part 1 Fresh Cod

Circle one for yes/no questions.

Q3 Did you eat freshly caught Cod (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Cod only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you fresh Cod during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Broth		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Cod

Circle one for yes/no questions.

Q6 Did you eat Cod that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Cod only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Cod during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Broth		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Lingcod in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Lingcod did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	02 or 03	
Meat/ Fillet without skin	02 or 03	
Soup/Chowder/Broth	10	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Lingcod.

Part 1 Fresh Lingcod

Circle one for yes/no questions.

Q3 Did you eat freshly caught Lingcod (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Lingcod only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you fresh Lingcod during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Broth		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Lingcod

Circle one for yes/no questions.

Q6 Did you eat Lingcod that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Lingcod only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Lingcod during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Broth		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Tuna in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Tuna did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Sandwich	09	
Fish Hash	08	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught, frozen, and canned Tuna.

Part 1 Fresh or Frozen Tuna Circle one for yes/no questions.

Q3 Did you eat freshly caught Tuna ?

How Often?

Yes / No → go to next part.

↓

Q4 Did you eat fresh or frozen Tuna only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

Q5 How often did you eat fresh Tuna during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Canned Tuna

Circle one for yes/no questions.

Q6 Did you eat canned Tuna?

Yes / No

go to next part.

How Often?**Q7** Did you eat canned Tuna only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat canned Tuna during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Canned**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandwich		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish Hash		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4**Q9** Please tell me if you eat this fish also frozen or smoked.

Frozen Smoked No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

BASS 1
(freshwater)

Fish 17

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Bass in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Bass did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers “other”, please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Use this space if you need space to describe “other” meals.

Description of “Other”:

I am going to ask you now about freshly caught and frozen Bass.

Part 1 Fresh Bass

Circle one for yes/no questions.

Q3 Did you eat freshly caught Bass (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Bass only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Bass during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Bass

Circle one for yes/no questions.

Q6 Did you eat Bass that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Bass only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Bass during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned None

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Trout in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Trout did you normally eat in one meal at home?

Food Model #

Amount (1/2, 1, 2, etc.)

Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught, frozen, and smoked Trout.

Part 1 Fresh Trout

Circle one for yes/no questions.

Q3 Did you eat freshly caught Trout (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

go to next part.

Q4 Did you eat fresh Trout only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Trout during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Trout

Circle one for yes/no questions.

Q6 Did you eat Trout that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Trout only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Trout during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Smoked Trout

Circle one for yes/no questions.

Q9 Did you eat smoked Trout?

Yes / No

go to next part.

How Often?**Q1** Did you eat smoked Trout only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you smoked Trout this during the months that you told me? You can tell me the times per day, per week, per month, or per year.**Smoked**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4**Q1** Please tell me if you eat this fish also canned.

Yes / No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

PERCH (Saltwater) 1 Fish 19

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1

Did you eat saltwater Perch in 1985?

Yes / No



go to next fish

How Much?

Q2

How much Perch did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Perch.

Part 1 Fresh Perch

Circle one for yes/no questions.

Q3 Did you eat freshly caught Perch (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Perch only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Perch during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Perch

Circle one for yes/no questions.

Q6 Did you eat Perch that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Perch only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Perch during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

POLLOCK 1 (Fishsticks)

Fish 20

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Pollock in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Pollock did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Fish Sticks	04	
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Pollock.

Part 1 Fresh Pollock

Circle one for yes/no questions.

Q3 Did you eat freshly caught Pollock (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Pollock only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

Q5 How often did you eat fresh Pollock during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Pollock

Circle one for yes/no questions.

Q6 Did you eat Pollock that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Pollock only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Pollock during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Sturgeon in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Sturgeon did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers “other”, please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	02 or 03	
Meat/ Fillet without skin	02 or 03	
Other:		
Other:		
Other:		

Use this space if you need space to describe “other” meals.

Description of “Other”:

I am going to ask you now about freshly caught and frozen Sturgeon.

Part 1 Fresh Sturgeon

Circle one for yes/no questions.

Q3 Did you eat freshly caught Sturgeon (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Sturgeon only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Sturgeon during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Sturgeon

Circle one for yes/no questions.

Q6 Did you eat Sturgeon that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Sturgeon only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Sturgeon during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Sable Fish in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Sable Fish did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Sable fish.

Part 1 Fresh Sable Fish

Circle one for yes/no questions.

Q3 Did you eat freshly caught Sable Fish (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Sable Fish only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

Q5 How often did you eat fresh Sable Fish during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Sable Fish

Circle one for yes/no questions.

Q6 Did you eat Sable Fish that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Sable Fish only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Sable Fish during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

SHARK (SPINY DOG FISH) 1 Fish 23

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Shark in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Shark did you normally eat in one meal at home?

Food Model #

Amount (1/2, 1, 2, etc.)

Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Shark.

Part 1 Fresh Shark

Circle one for yes/no questions.

Q3 Did you eat freshly caught Shark (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Shark only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Shark during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Shark

Circle one for yes/no questions.

Q6 Did you eat Shark that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Shark only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Shark during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Greenling in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Greenling did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Greenling.

Part 1 Fresh Greenling

Circle one for yes/no questions.

Q3

Did you eat freshly caught Greenling (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

↓

Q4

Did you eat fresh Greenling only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

Q5

How often did you eat fresh Greenling during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Greenling

Circle one for yes/no questions.

Q6 Did you eat Greenling that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Greenling only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Greenling during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Rockfish in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Rockfish did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Rockfish.

Part 1 Fresh Rockfish

Circle one for yes/no questions.

Q3 Did you eat freshly caught Rockfish (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Rockfish only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Rockfish during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Rockfish

Circle one for yes/no questions.

Q6 Did you eat Rockfish that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Rockfish only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Rockfish during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Mackerel in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Mackerel did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Mackerel.

Part 1 Fresh Mackerel

Circle one for yes/no questions.

Q3 Did you eat freshly caught Mackerel (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Mackerel only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you fresh Mackerel this during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Mackerel

Circle one for yes/no questions.

Q6 Did you eat Mackerel that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Mackerel only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Mackerel during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Skate in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Skate did you normally eat in one meal at home?

Food Model #

Amount (1/2, 1, 2, etc.)

Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Skate.

Part 1 Fresh Skate

Circle one for yes/no questions.

Q3 Did you eat freshly caught Skate (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Skate only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

Q5 How often did you eat fresh Skate during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Skate

Circle one for yes/no questions.

Q6 Did you eat Skate that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Skate only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Skate during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Sting Ray in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Sting Ray did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Sting Ray.

Part 1 Fresh Sting Ray

Circle one for yes/no questions.

Q3 Did you eat freshly caught Sting Ray (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Sting Ray only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Sting Ray during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Sting Ray

Circle one for yes/no questions.

Q6 Did you eat Sting Ray that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Sting Ray only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Sting Ray during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9**

Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Eel in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Eel did you normally eat in one meal at home?

Food Model #

Amount (1/2, 1, 2, etc.)

Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Eel.

Part 1 Fresh Eel

Circle one for yes/no questions.

Q3 Did you eat freshly caught Eel (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

go to next part.

Q4 Did you eat fresh Eel only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Eel during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Eel

Circle one for yes/no questions.

Q6 Did you eat Eel that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Eel only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Eel during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Catfish in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Catfish did you normally eat in one meal at home?

Food Model #

Amount (1/2, 1, 2, etc.)

Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Catfish.

Part 1 Fresh Catfish

Circle one for yes/no questions.

Q3 Did you eat freshly caught Catfish (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Catfish only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

Q5 How often did you eat fresh Catfish during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Catfish

Circle one for yes/no questions.

Q6 Did you eat Catfish that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Catfish only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Catfish during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Lamprey in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Lamprey did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat/ Fillet with skin	04	
Meat/ Fillet without skin	04	
Other:		
Other:		
Other:		

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Lamprey.

Part 1 Fresh Lamprey

Circle one for yes/no questions.

Q3 Did you eat freshly caught Lamprey (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Lamprey only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Lamprey during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Lamprey

Circle one for yes/no questions.

Q6 Did you eat Lamprey that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Lamprey only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Lamprey during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Look at the seafood booklet together to confirm the identity of this fish.

Circle one for yes/no questions.

Q1 Did you eat Shad in 1985?

Yes / No

→ go to next fish

How Much?

Q2 How much Shad did you normally eat in one meal at home?

Food Model #

Amount (1/2, 1, 2, etc.)

Meat/ Fillet with skin	03	
Meat/ Fillet without skin	03	
Other:		
Other:		
Other:		

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

Use this space if you need space to describe "other" meals.

Description of "Other":

I am going to ask you now about freshly caught and frozen Lamprey.

Part 1 Fresh Shad

Circle one for yes/no questions.

Q3 Did you eat freshly caught Lamprey (fish that was not stored frozen, or smoked, or canned)?

How Often?

Yes / No

→ go to next part.

Q4 Did you eat fresh Shad only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q5 How often did you eat fresh Shad during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Shad

Circle one for yes/no questions.

Q6 Did you eat Shad that was stored frozen before cooking it?

Yes / No

go to next part.

How Often?**Q7** Did you eat previously frozen Shad only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Shad during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Meat/ Fillet with skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Fillet without skin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9** Please tell me if you eat this fish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation

HORSE CLAMS 1 Shellfish 33 Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Horse Clams?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Much?

Q2 How much or how many horse clams did you normally eat in one meal at home?
Let me read you the options

	Food Model #	Amount (1/2, 1, 2, etc.)
Fritters	16	
Neck Strips/Fried	18	
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Horse Clams

Q3 Did you eat fresh Horse Clams that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Horse Clams only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Horseclams during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Neck Strips/Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Horse Clams

Circle one for yes/no questions.

Q6 Did you eat Horse Clams that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Horse Clams only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Horse Clams during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Neck Strips/Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

BUTTER CLAMS 1 Shellfish 34 Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Butter Clams?

Yes / No

go to next seafood species. Circle one for yes/no questions. **How Much?**

Q2 How much or how many Butter clams did you normally eat in one meal at home? Let me read you the options.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fritters	16	
Clam Strips/Fried	20	
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Butter Clams

Q3 Did you eat fresh Butter Clams that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Butter Clams only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

How Often?

Q5 How often did you eat fresh Butter Clams during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clam Strips/Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Butter Clams

Circle one for yes/no questions.

Q6 Did you eat Butter Clams that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Butter Clams only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Butter Clams during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clam Strips/Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

GEODUCKS (DUCKS) 1 Shellfish 35 Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Geoducks?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Much?

Q2 How much or how many Geoducks did you normally eat in one meal at home? Let me read you the options.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fritters	16	
Neck Strips/Fried	17	
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Geoducks

Q3 Did you eat fresh Geoducks that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Geoducks only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Geoducks during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clam Strips/Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Geoducks

Circle one for yes/no questions.

Q6

Did you eat Geoducks that were stored frozen before cooking?

Yes / No

go to next part.

How Often?**Q7**Did you eat previously frozen Geoducks only during certain months of the year, or all year around?
Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8How often did you eat previously frozen Geoducks during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clam Strips/Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9**

Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

MANILA CLAMS/STEAMER 1 Shellfish 36 Look at the seafood booklet together to confirm the identity of this seafood.

Little necks

Q1 Did you eat Manila Clams?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Much?

Q2 How much or how many Manila Clams did you normally eat in one meal at home? Let me read you the options.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fritters	16	
Whole Clams	22	(Food Model or Count of Clams)
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Manila clams

Q3 Did you eat fresh Manila Clams that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Manila Clams only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Manila Clams during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whole Clams		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Manila Clams

Circle one for yes/no questions.

Q6 Did you eat Manila Clams that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Manila Clams only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Manila Clams during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whole Clams		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

OYSTERS 1

Shellfish 37 Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Oysters?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Much?

Q2 How much or how many Oysters did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fritters	16	
Whole Oysters	21	(Food Model or Count of Oysters)
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Part 1 Fresh Oysters

Q3 Did you eat fresh Oysters that were not stored, or smoked, or canned?

Yes / No

go to next part.

Use this space if you need space to describe "other" meals.

Q4 Did you eat fresh Oysters only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Oysters during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whole Oysters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Oysters

Circle one for yes/no questions.

Q6 Did you eat Oysters that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Oysters only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Oysters during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whole Oyster		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

COCKLES 1

Shellfish 38 Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Cockles?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Much?

Q2 How much or how many Cockles did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fritters	16	
Whole Cockles	19	Food Model or Count of Cockles
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Cockles

Q3 Did you eat fresh Cockles that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Cockles only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Cockles during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whole Cockles		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Cockles

Circle one for yes/no questions.

Q6

Did you eat Cockles that were stored frozen before cooking?

Yes / No

go to next part.

How Often?**Q7**

Did you eat previously frozen Cockles only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8How often did you eat previously frozen Cockles during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whole Cockles		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9**

Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

SCALLOPS 1

Shellfish 39 Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Scallops?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Much?

Q2 How much or how many Scallops did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fritters	16	
Meat/Muscles	26	Food Model or Count of Muscles
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Scallops

Q3 Did you eat fresh Scallops that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Scallops only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Scallops during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/Muscles		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Scallops

Circle one for yes/no questions.

Q6

Did you eat Scallops that were stored frozen before cooking?

Yes / No

go to next part.

How Often?**Q7**

Did you eat previously frozen Scallops only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8How often did you eat previously frozen Scallops during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat/ Muscles		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9**

Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

RAZOR CLAMS (JACKKNIFE CLAMS) 1 Shellfish 40 Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Razor Clams?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Razor Clams did you normally eat in one meal at

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fritters	16	
Clam Strips/Fried	20	
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Razor Clam

Q3 Did you eat fresh Razor Clams that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Razor Clams only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Razor Clams during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clam Strips/Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Razor Clams

Circle one for yes/no questions.

Q6 Did you eat Razor Clams that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Razor Clams only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Razor Clams during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clam Strips/Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

MUSSELS 1

Shellfish 41

Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Mussels?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Mussels did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fritters	16	
Whole Mussels	25	Food Model or Count of Mussels
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Mussels

Q3 Did you eat fresh Mussels that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Mussels only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

How Often?

Q5 How often did you eat fresh Mussels during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whole Mussels		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Mussels

Circle one for yes/no questions.

Q6 Did you eat Mussels that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Mussels only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Mussels during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Fritters		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whole Mussels		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

ABALONE 1

Shellfish 42

Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Abalone?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Abalone did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fried	31	
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Abalone

Q3 Did you eat fresh Abalone that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Abalone only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

How Often?

Q5 How often did you eat fresh Abalone during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Abalone

Circle one for yes/no questions.

Q6

Did you eat Abalone that were stored frozen before cooking?

Yes / No

go to next part.

How Often?**Q7**

Did you eat previously frozen Abalone only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8How often did you eat previously frozen Abalone during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9**

Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

LIMPETS (CHINA CAPS) 1

Shellfish 43

Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Limpets?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Limpets did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fried	27	Food Model or Count of Limpets
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Limpets

Q3 Did you eat fresh Limpets that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Limpets only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Limpets during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Limpets

Circle one for yes/no questions.

Q6 Did you eat Limpets that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Limpets only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Limpets during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Q1 Did you eat Barnacles?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Barnacles did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fried	33	
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Part 1 Fresh Barnacles

Q3 Did you eat fresh Barnacles that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Barnacles only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Barnacles during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Use this space if you need space to describe "other" meals.

Part 2 Frozen Barnacles

Circle one for yes/no questions.

Q6

Did you eat Barnacles that were stored frozen before cooking?

Yes / No

go to next part.

How Often?**Q7**

Did you eat previously frozen Barnacles only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8How often did you eat previously frozen Barnacles during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9**

Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

DUNGENESS CRAB 1 Shellfish 45

Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Dungeness Crab?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Dungeness Crabs did you normally eat in one meal at home?
Let me read you the options.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat / no Crab Butter	34	
Meat / with Crab Butter	34	
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Part 1 Fresh Dungeness Crab

Q3 Did you eat fresh Dungeness Crabs that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Dungeness Crab only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Dungeness Crab during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat / no Crab Butter		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat / with Crab Butter		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Dungeness Crab Circle one for yes/no questions.

Q6 Did you eat Dungeness Crabs that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Dungeness Crab only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Dungeness Crab during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Meat / no Crab Butter		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat / with Crab Butter		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Canned Dungeness Crab Circle one for yes/no questions.

Q9 Did you eat canned Dungeness Crab?

Yes / No

go to next part.

How Often?

Q1 Did you eat canned Dungeness Crab only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat canned Dungeness Crab during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Canned

	Times per	Day	Week	Month	Year
Meat / no Crab Butter		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meat / with Crab Butter		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q1 Please tell me if you eat this shellfish also smoked.

Yes / No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Q1 Did you eat Red Rock crab?

Yes / No



go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Red Rock Crabs did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Meat only	34	
Claws	n/a	Count:
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Red Rock Crab

Q3 Did you eat fresh Red Rock Crabs that were not stored frozen, or smoked, or canned?

Yes / No



go to next part.

Q4 Did you eat fresh Red Rock Crab only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Red Rock Crab during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Meat only		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Claws		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Red Rock Crab

Circle one for yes/no questions.

Q6 Did you eat Red Rock Crabs that were stored frozen before cooking?

Yes / No → go to next part.

How Often?

Q7 Did you eat previously frozen Red Rock Crab only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Red Rock Crab during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Meat only		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Claws		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Canned Red Rock Crab Circle one for yes/no questions.

Q9 Did you eat canned Red Rock Crabs?

Yes / No

go to next part.

How Often?

Q1 Did you eat canned Red Rock Crab only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat canned Red Rock Crab during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Canned

	Times per	Day	Week	Month	Year
Meat only		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Claws		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q1 Please tell me if you eat this shellfish also smoked.

Yes / No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

SHRIMP 1

Shellfish 47

Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Shrimp?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Shrimp did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fried	23	
Soup/Chowder/Stew	11	
Boiled	23	
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Shrimp

Q3 Did you eat fresh Shrimp that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Shrimp only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Shrimp during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boiled		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Shrimp

Circle one for yes/no questions.

Q6 Did you eat Shrimp that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Shrimp only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Shrimp during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boiled		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

CRAYFISH (CRAW DADDIES) 1

Shellfish 48

Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Crayfish?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Crayfish did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fried	23	
Soup/Chowder/Stew	11	
Boiled		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Crayfish

Q3 Did you eat fresh Crayfish that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Crayfish only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Crayfish during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boiled		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Crayfish

Circle one for yes/no questions.

Q6 Did you eat Crayfish that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Crayfish only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Crayfish during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boiled		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

SQUID 1

Shellfish 49

Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Squid?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Squid did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fried	24	
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Squid

Q3 Did you eat fresh Squid that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Squid only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Squid during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Squid

Circle one for yes/no questions.

Q6

Did you eat Squid that were stored frozen before cooking?

Yes / No

go to next part.

How Often?**Q7**

Did you eat previously frozen Squid only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8How often did you eat previously frozen Squid during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Smoked Squid

Circle one for yes/no questions.

Q9 Did you eat smoked Squid?

Yes / No

go to next part.

How Often?**Q1** Did you eat smoked Squid only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat smoked Squid during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Smoked**

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4**Q1** Please tell me if you eat this also canned.

Yes / No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

OCTOPUS (DEVIL FISH) 1

Shellfish 50

Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Octopus?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Octopus did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fried	24	
Soup/Chowder/Stew	11	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Octopus

Q3 Did you eat fresh Octopus that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Octopus only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Octopus during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Octopus

Circle one for yes/no questions.

Q6

Did you eat Octopus that were stored frozen before cooking?

Yes / No

go to next part.

How Often?**Q7**

Did you eat previously frozen Octopus only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8How often did you eat previously frozen Octopus during the months that you told me?
You can tell me the times per day, per week, per month, or per year.**Frozen**

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 Smoked Octopus

Circle one for yes/no questions.

Q9 Did you eat smoked Octopus?

Yes / No

go to next part.

How Often?

Q1 Did you eat smoked Octopus only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q1 How often did you eat smoked Octopus during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Smoked

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soup/Chowder/Stew		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 4

Q1 Please tell me if you eat this also canned.

Yes / No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

SEA URCHIN (SQWI'TSI, squeetsee) 1 Shellfish ⁵¹ Look at the seafood booklet together to confirm the identity of this seafood.

Q1 Did you eat Sea Urchin?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Sea Urchins did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Raw	28	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Sea Urchin

Q3 Did you eat fresh Sea Urchin that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Sea Urchin only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Sea Urchin during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Raw		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Sea Urchin

Circle one for yes/no questions.

Q6 Did you eat Sea Urchins that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Sea Urchins only during certain months of the year, or all year around? Tell me the months you ate this or say all

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Sea Urchins during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Raw		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Q1 Did you eat Sea Cucumber?

Yes / No



go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Sea Cucumbers did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fried	29	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Sea Cucumber

Q3 Did you eat fresh Sea Cucumbers that were not stored frozen, or smoked, or canned?

Yes / No



go to next part.

Q4 Did you eat fresh Sea Cucumber only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Sea Cucumber during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Sea Cucumber

Circle one for yes/no questions.

Q6 Did you eat Sea Cucumbers that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Sea Cucumbers only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Sea Cucumbers during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Q1 Did you eat Moon Snail?

Yes / No

→ go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Moon Snails did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fried	30	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Moon Snail

Q3 Did you eat fresh Moon Snails that were not stored frozen, or smoked, or canned?

Yes / No

→ go to next part.

Q4 Did you eat fresh Moon Snails only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Moon Snails during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Moon Snail

Circle one for yes/no questions.

Q6

Did you eat Moon Snails that were stored frozen before cooking?

Yes / No

go to next part.

How Often?**Q7**

Did you eat previously frozen Moon Snail only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8

How often did you eat previously frozen Moon Snail during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3**Q9**

Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

Q1 Did you eat Chiton?

Yes / No

go to next seafood species. Circle one for yes/no questions.

How Often?

Q2 How much or how many Chitons did you normally eat in one meal at home?

Read all the options to the respondent before filling out the table. If the respondent answers "other", please fill in a description and use the food model that comes the closest.

	Food Model #	Amount (1/2, 1, 2, etc.)
Fried	32	
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh Chiton

Q3 Did you eat fresh Chitons that were not stored frozen, or smoked, or canned?

Yes / No

go to next part.

Q4 Did you eat fresh Chiton only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat fresh Chiton during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 2 Frozen Chiton

Circle one for yes/no questions.

Q6 Did you eat Chiton that were stored frozen before cooking?

Yes / No

go to next part.

How Often?

Q7 Did you eat previously frozen Chiton only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat previously frozen Chiton during the months that you told me?
You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Fried		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3

Q9 Please tell me if you eat this shellfish also canned or smoked.

Smoked Canned No

Circle one.

Fill in an extra sheet if the respondent used an additional preservation method.

OTHER? 1

Q1 Did you eat other seafood – finfish or shellfish – that was not on this list?

Yes / No

Go to Finish. Circle one for yes/no questions.

How Often?

Q1 If yes, what was it?

Q2 How much or how many of this did you normally eat in one meal at home?

	Food Model #	Amount (1/2, 1, 2, etc.)
Other:		
Other:		
Other:		

Description of "Other":

Use this space if you need space to describe "other" meals.

Part 1 Fresh _____

Q3 Did you this eat fresh, not stored frozen for a longer time?

Yes / No

go to next part.

Q4 Did you this eat fresh only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How Often?

Q5 How often did you eat this during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Fresh

	Times per	Day	Week	Month	Year
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OTHER 2

Part 2 Frozen _____

Circle one for yes/no questions.

Q6 Did you eat this after it was stored frozen before cooking?

Yes / No

→ go to next part.

How Often?

Q7 Did you eat this frozen only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

Q8 How often did you eat this during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Frozen

	Times per	Day	Week	Month	Year
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OTHER 3

Part 3 Smoked _____ Circle one for yes/no questions.

Q9 Did you eat this smoked? Yes / No → go to next part.

How Often?

Q1 Did you eat this smoked only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D ALL

Circle one.

Q1 How often did you eat this during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Smoked

	Times per	Day	Week	Month	Year
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OTHER 4

Part 4 Canned _____ Circle one for yes/no questions.

Did you eat this canned?

Yes / No

Go to Finish!

How Often?

Did you eat this canned only during certain months of the year, or all year around? Tell me the months you ate this or say all year.

J F M A M J J A S O N D

ALL

Circle one.

How often did you eat this during the months that you told me? You can tell me the times per day, per week, per month, or per year.

Canned

	Times per	Day	Week	Month	Year
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 5 More?

Are there any more seafood – finfish or shellfish—that were not on this list?

Yes / No

Go to Finish!

There are more sheets like this loose in your package. Fill out as many as you need!!!

F FINISH

We are almost finished now. Thank you very much for taking part in this survey. This survey is important for the protection of our tribal resources.

We would appreciate your signing on the bottom of the consent form that the interview took place. I will then place the form in an envelope separate from the questionnaire. It will remain confidential and will be destroyed after the study is completed.

(Present form for signature and place in envelope.)

(Hand over the honorarium check. Have the recipient sign the receipt book.)

Again, thank you very much. The Lummi Natural Resources Department appreciates your help with this study.

(Record time the interview ended on the log. Hand in the consent form in the sealed envelope to the study manager [Monika Lange] together with the questionnaire and interview log. Thank you!)

1985

Month	World Events	Local
January	Ronald Regan takes oath for a second term of office. San Francisco wins the Super Bowl over Miami (38-16).	Public Hearings about the development at Semiahmoo.
February	Grammy Song of the Year: "What's love got to do with it" by Tina Turner	Larry Kinley elected as new LIBC chairman.
March	Soviet leader Chernenko dies and is replaced by Mikhail Gorbachev who starts to introduce democracy in Russia.	Because of poaching problems, Lummi crab fishers decided to issue fishing IDs and mark crab pots.
April		Tribal Employment Rights Office (TERO) started.
May	First bombing by the Una Bomber.	
June	TWA Flight 847 is hijacked by Hezbollah on June 14. LA Lakers defeat Boston Celtics 4-2 in the NBA Championship.	The Northwest Indian College (NWIC) held its first commencement ceremony with the first graduates.
July	"Back to the Future" opens in theaters. Live Aid pop concerts raise money for the famine in Ethiopia.	
August		
September	The wreck of the RMS Titanic is found.	
October	PLO terrorists hijack the Achille Lauro, an Italian cruise ship with 80 passengers. Kansas City wins the World Series: Kansas City 4—St. Louis Cardinals 3.	
November	Terrorists seize Egyptian airliner after take-off from Athens. 53 dead as Egyptian forces storm the plane on Malta.	Isadore Tom became Washington Outstanding Elder of the Year.
December		

Informed Consent Form

The Lummi Natural Resources Department asks you to take part in research about the eating habits of the members of the Lummi Nation. We will ask you what kinds of seafood and how much seafood you ate in 1985.

We will use the results of the study to help protecting the Lummi fisheries and Lummi resources. The results of the study will support new water quality standards for Lummi and for Washington State because toxic substances can be concentrated in seafood. The water quality standards will limit how much toxic substances can be in the waters of the Reservation and beyond.

We will ask 150 randomly selected fishermen in your age group to be interviewed. A trained interviewer will ask you questions and will record your answers.

Your answers will be private and your name will not be used in any reports. None of your answers will be able to be tracked back to you. A final report about the diet survey will be made to the Lummi Indian Business Council and the general public without publishing individual answers.

We know of no risks to you in taking part besides a loss in confidentiality and we are taking all necessary precautions to prevent this: This consent form will be kept apart from the questionnaires in a locked cabinet, so that nobody but the project manager can match your answers with your name for the time of the study. The form will be destroyed afterwards. Confidential computer files will be password protected.

Taking part is voluntary.

I understand that I can stop the interview at any time. There are no penalties for deciding not to be interviewed and there are no penalties for stopping the interview. You will not loose any services by the tribe if you do not wish to be interviewed.

The interview will take about 2 hours. You will receive a \$25 honorarium if you complete the interview.

If you have **questions** about the survey, you can contact:

Merle Jefferson, Sr.

Executive Director

Leroy Deardorff

Environmental Director

Jeremy Freimund, P.H.

Water Resources Manager

Lummi Natural Resources Department

2616 Kwina Road

Bellingham, WA 98226

Phone: 360 384 2212

Email: jeremyF@lummi-nsn.gov

If you have a **complaint or other concern** you can also contact:

David Oreiro

Chair

Institutional Review Board

Northwest Indian College

2522 Kwina Road

Bellingham, WA 98226

(360) 392-4249

doreiro@nwc.edu

I have read this consent from. I have had a chance to ask questions. I understand the survey and I agree to be interviewed.

Signature of Participant

Date

Witness Signature

Date

Sign after interview: I was interviewed on:

Signature of Participant

Date

What were your personal cornerstones for the year 1985?

(The sheet will stay with the respondent.)

How old were you in 1985?

Where did you live?

Were you married?

Did you have children? How old were they?

Where did you work that year?

Did you have a car? What make was it?

Did you have a boat?

APPENDIX B – SPECIES IDENTIFICATION BOOKLET

Note: The Species Identification Booklet was folded in half and stapled at the fold for use in the Lummi Seafood Consumption Study interviews.

53 Moon Snail



54 Chiton



Seafood Identification



Lummi Diet Study 2011

1 Chinook Salmon
King, Blackmouth



51 Urchin



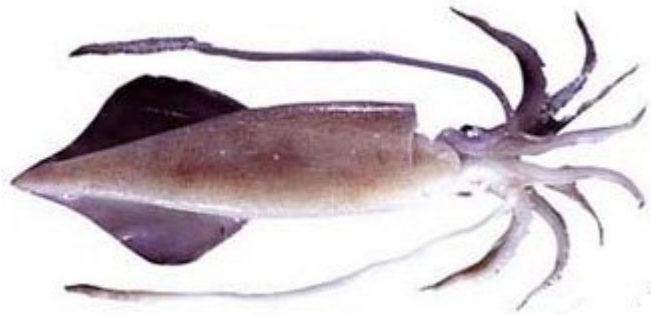
2 Sockeye Salmon



52 Sea Cucumber



49 Squid



3 Coho Salmon
Silver



50 Octopus



4 Chum Salmon
Dog



5 Pink Salmon
Humpies



47 Shrimp



6 Steelhead Trout



48 Crayfish



45 Dungeness Crab



7,8 Smelt
Surf Smelt, River Smelt



46 Red Rock Crab



9 Herring



10 Grunter
Plainfin Midshipman



43 Limpets
China Caps



11 Bullhead
Sculpin



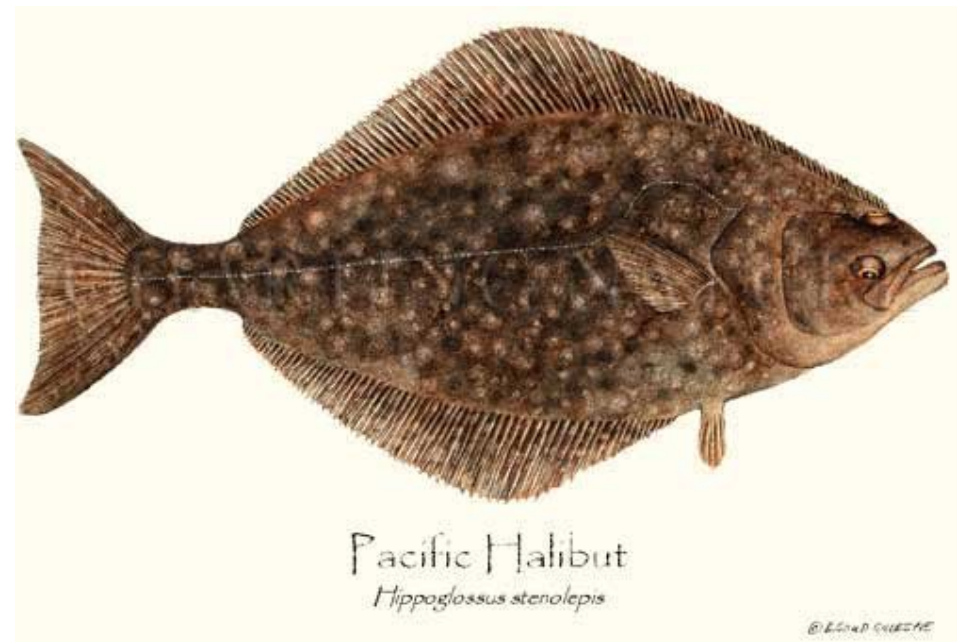
44 Barnacles



41 Mussels



12 Halibut



42 Abalone



13 Flounders and Soles



14 Cod and Tomcod



39 Scallops



15 Lingcod



**40 Razor Clams
or Jackknife Clams**



37 Oysters



16 Tuna



38 Cockles



17 Bass



18 (Freshwater) Trout
Cutthroat, Rainbow, Brook



Cutthroat

35 Geoduck
Ducks



19 Perch



36 Manila
Little necks, Steamers



33 Horse Clams
Gapers



20 Pollock



34 Butter Clams



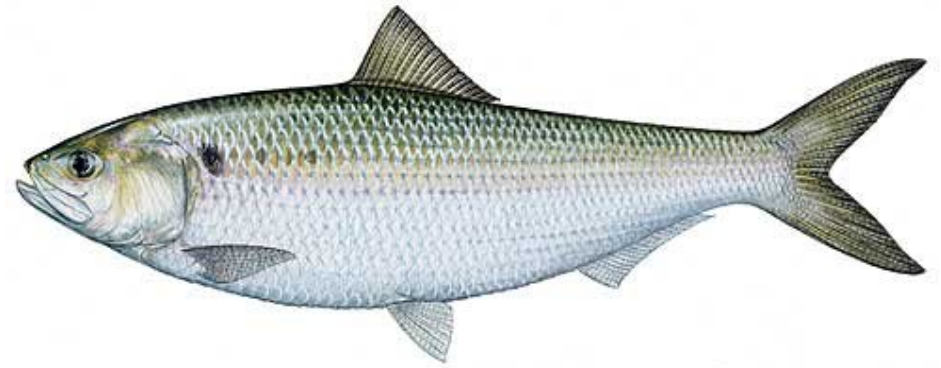
21 Sturgeon



22 Sable Fish
Black Cod



32 Shad



23 Spiny Dogfish
Shark



30 Catfish



24 Greenling



31 Lamprey



25 Rockfish
Rock Cod



26 Mackarel



28 Sting Ray



27 Skate



29 (Freshwater) Eel



APPENDIX C – PORTION MODELS

Table A: Portion Model Weights and Methods Used to Determine Portion Model Weights

Scans of the Scaled Portion Model Images and Tables of Contents Used During the Lummi Seafood Consumption Study Interviews

Table A: Portion Model Weights and Methods

Food Model Description	Amount	Uncooked Seafood Weights of Edible Meat¹	Method	Eaten by Number of Respondents n=82
Salmon Filet w/ skin	1 Filet	233.90 g	Measured	82
Salmon Filet w/o skin	1 Filet	208.87 g	Measured	82
Salmon Head	1 Head, divided	15.94 g	Measured	82
Salmon Eggs	1 Skein	159.05 g	Measured	82
Halibut Filet w/ skin	1 Filet	261.95 g	Measured	63
Halibut Filet w/o skin	1 Filet	233.92 g	Measured	67
Mid-sized Fish Filet	1 Filet	135.00g	Measured	79
Mid-sized Fish Filet w/o skin	1 Filet	120.6 g	Measured	79
Fish Sticks	4 Fish Sticks	60.76 g	Measured	11
One Fish Stick	1 Fish Stick (Count)	15.19 g	Measured	12
Small Eggs: Herring, Grunters, Bullhead	1 Heap of Eggs	50.10 g	Measured	77
Fish Hash	1 Serving of Hash	103.47 g	Measured	82
Fish Sandwich	1 Open-Faced Sandwich	82.63 g	Measured	82
Bowl of Fish Soup	1 Bowl of Soup	111.74 g	Measured	82
Bowl of Clam Soup	1 Bowl of Soup	78.51 g	Measured	82
Hooligans (River Smelt)	15 Fish	156 g	Measured	77
One Hooligan (River Smelt)	1 Fish	10.40 g	Measured	77
Herring (also used for Surf Smelt)	6 Fish	113.25 g	Measured	26
One Herring	1 Fish	18.875 g	Measured	26
Grunder	1 Fish	107.94 g	Measured	26
Bullhead	1 Fish	107.94g	Fish unavailable - Grunder Weight used	4
Clam Fritters	2 Fritters	125.25 g	Measured	81
Fried Clam Strips	1 Serving of Clam Strips	163.98 g	Measured	78

Food Model Description	Amount	Uncooked Seafood Weights of Edible Meat¹	Method	Eaten by Number of Respondents n=82
Geoduck Neck Strips	1 Serving of Neck Strips (1 Geoduck Siphon)	269.90 g	Measured	13
Horse Clam Neck Strips	1 Serving of Neck Strips (1 Horse Clam Siphon)	106.60 g	Measured	69
Horse Clam Cleaned	1 Clam	155.7 g	From Literature ²	4
Butter Clam Whole	1 Clam	24.3 g	From Literature ³	1
Cockles	9 Clams	133.70 g	Measured	33
One Cockle	1 Clam	14.85 g	Measured	33
Oysters	10 Oysters	153.00 g	Measured	72
One Oyster	1 Oyster	15.30 g	Measured	72
Manila Clams	13 Clams	126.20 g	Measured	66
One Manila Clam	1 Clam	9.7 g	Measured	66
Mussels	10 Mussels	49.00 g	Measured	21
One Mussel	1 Mussel	4.9 g	Measured	21
Scallops	3 Scallop Muscles	52.35 g	Measured	22
One Scallop Muscle	1 Scallop Muscle	17.45 g	Measured	6
Limpets	6 Snails	14.30 g	Measured	2
One Limpet	1 Snail	2.38 g	Measured	2
Fried Shrimp	11 Shrimp	43.94 g	Measured	42
One Shrimp	1 Shrimp	3.99 g	Measured	48
Fried Octopus/Squid	1 Serving of Cleaned Filets	275.60 g	Measured	44
Sea Urchin	1 Sea Urchin	68.04 g	From Literature ⁴	24
Sea Cucumber	1 Sea Cucumber	32.78 g	Measured	8
Moon Snail	1 Snail	50g	Tulalip Survey	0
Abalone	2 Snails	95g	From Literature ⁵	9

Food Model Description	Amount	Uncooked Seafood Weights of Edible Meat¹	Method	Eaten by Number of Respondents n=82
Chiton	1 Chiton	0 g	Weight unavailable	6
Barnacles	4 Barnacles	0 g	Weight unavailable	2
Dungeness Crab Meat with crab butter	1 Crab	275.51 g	Measured	76
Dungeness Crab Meat without Crab Butter	1 Crab	248.49 g	Measured	77
Red Rock Crab Claws (no picture)	1 Pair of Claws	18.4g	From Literature ⁶	10
Species added by Respondents:				
King Crab	1 Crab	0 g	Weight unavailable	1
Tanner Crab	1 Crab	0 g	Weight unavailable	1

1 - Unless otherwise noted, the weights of all portion models were determined empirically as part of the Lummi Seafood Consumption Study according to the recommendations of the EPA's National Health and Environmental Effects Research Laboratory, which has developed guidelines and computer-assisted personal interviewing (CAPI) software for tribal fish consumption surveys (www.epa.gov/nheerl/tribalfish/, accessed Feb. 2, 2011) (Kissinger et al. 2010).

2 - Horse Clam, cleaned, whole: The average weight of horse clams harvested on the Lummi Indian Reservation was taken from the Lummi Intertidal Baseline Inventory (LNR 2010). The weight ratio of clam shell and intestines to edible meat for horse clams was derived from the portion model data published in Appendix F of the seafood consumption survey of the Tulalip Tribes and Squaxin Island Tribes (Toy et al. 1996) and used to calculate the final edible meat weight for one horse clam.

3 - Butter Clam, cleaned, whole: The average weight of butter clams harvested on the Lummi Indian Reservation was taken from the Lummi Intertidal Baseline Inventory (LNR 2010). The weight ratio of clam shell and intestines to edible meat for butter clams was derived from the portion model data published in Appendix F of the seafood consumption survey of the Tulalip Tribes and Squaxin Island Tribes (Toy et al. 1996) and used to calculate the final edible meat weight for one butter clam.

4 - Sea Urchin (Gonads): The average weight of the gonads (the edible part) for red sea urchins was obtained from a fish buyer (Grand Hale Marine Products) who has previously bought sea urchins from Friday Harbor on San Juan Island which is located in the U&A area of the Lummi Nation. The fish buyer supplied the average weight of the harvested sea urchins and the weight ratio of whole animal to edible gonads from which the average weight of edible gonads was calculated.

5 - Abalone, edible meat: The edible meat weight for pinto abalone was calculated from the recoverable meat weight ratio listed by the Alaska Department of Fish and Game (ADFG 1994) and the meat weight listed in the British Columbia Shellfish's Growers Association's publication about pinto abalone (BCSGA 2012).

6 - Red Rock Crab Claws: The red rock crab claw weight was taken from an internet report describing the personal use of red rock crabs (Clovegarden 2012).

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Toy, K A, N L Polissar, S Liao, and G D Mittelstaedt. 1996. *A Fish Consumption Survey of the Tulalip and Squaxin Island Tribes of the Puget Sound Region*. 7615 Totem Beach Road, Marysville, WA 98271: Tulalip Tribes, Department of Environment.

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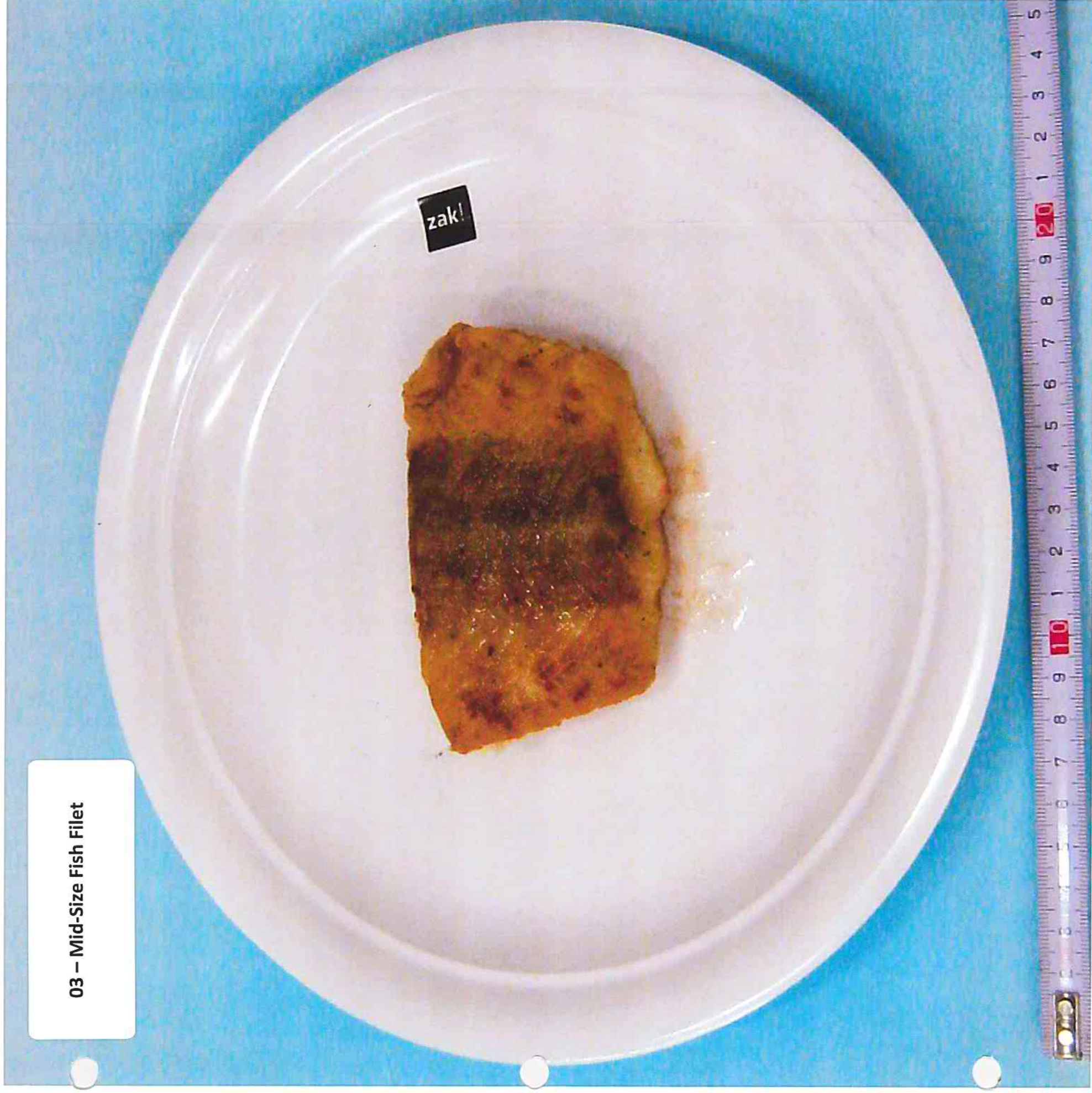
01 – Salmon Filet

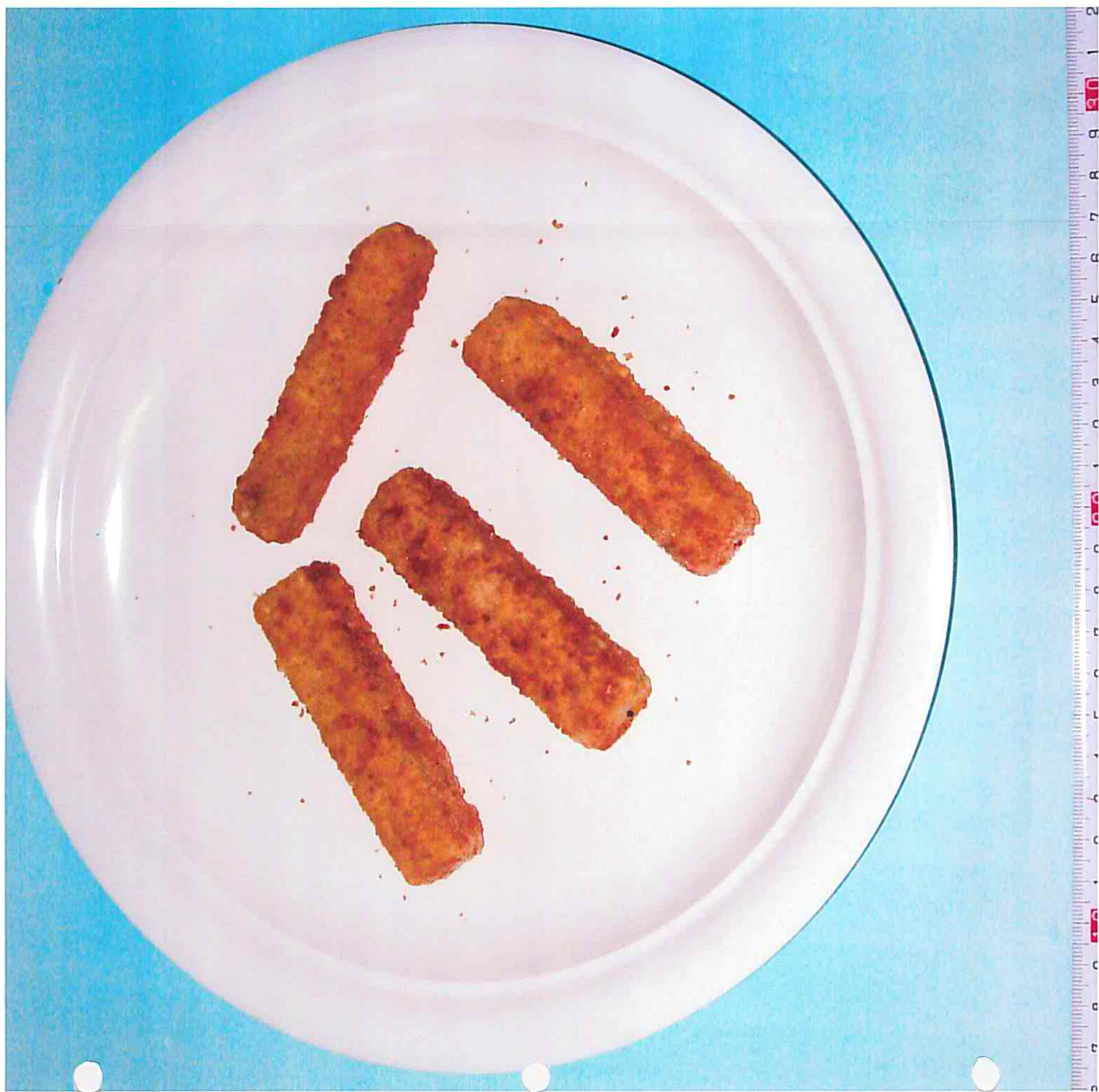


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07 – Small Fish Eggs



08 – Fish Hash



09 – Fish Sandwich



10 – Bowl of Fish Soup



11 – Bowl of Chowder



12 – Hooligans





13 – Herring/Surf Smelt

14 – Grunter



15 – Bullhead (Sculpin)



16 – Clam Fritters



17 – Geoduck Strips



18 – Horse Clam Strips





20 – Clam Strips



21 – Pacific Oysters





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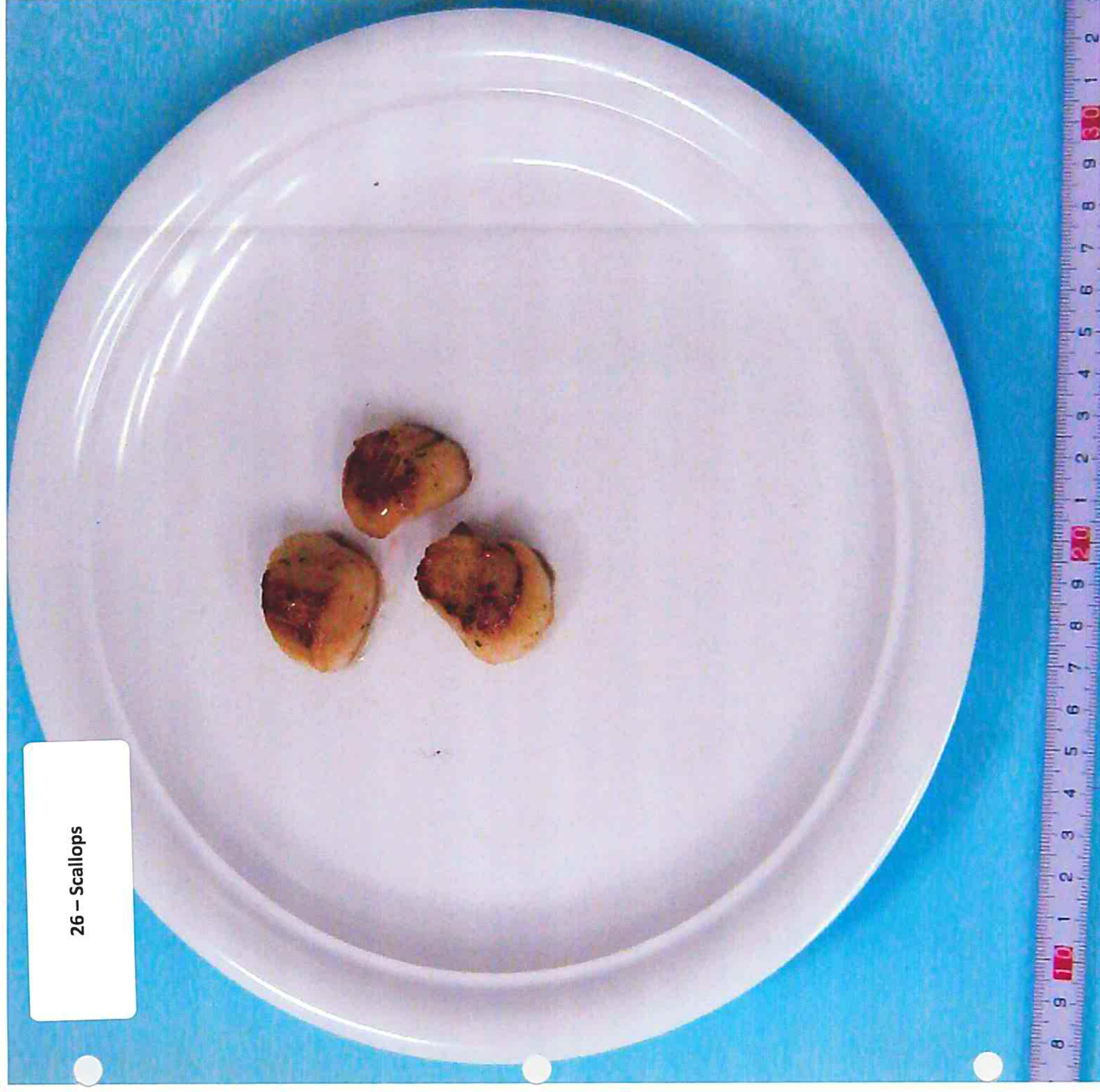


24 – Squid/Octopus





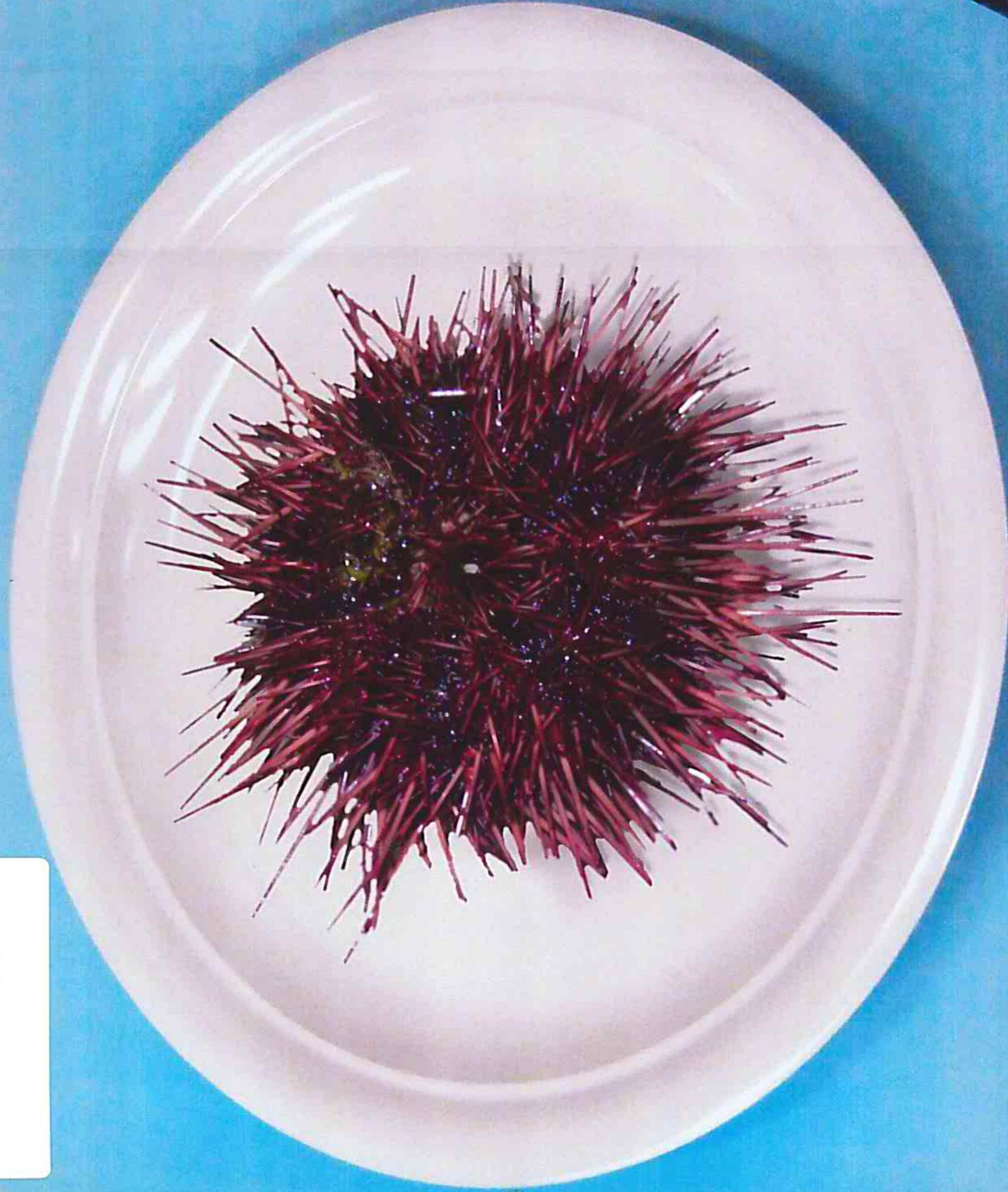
26 – Scallops



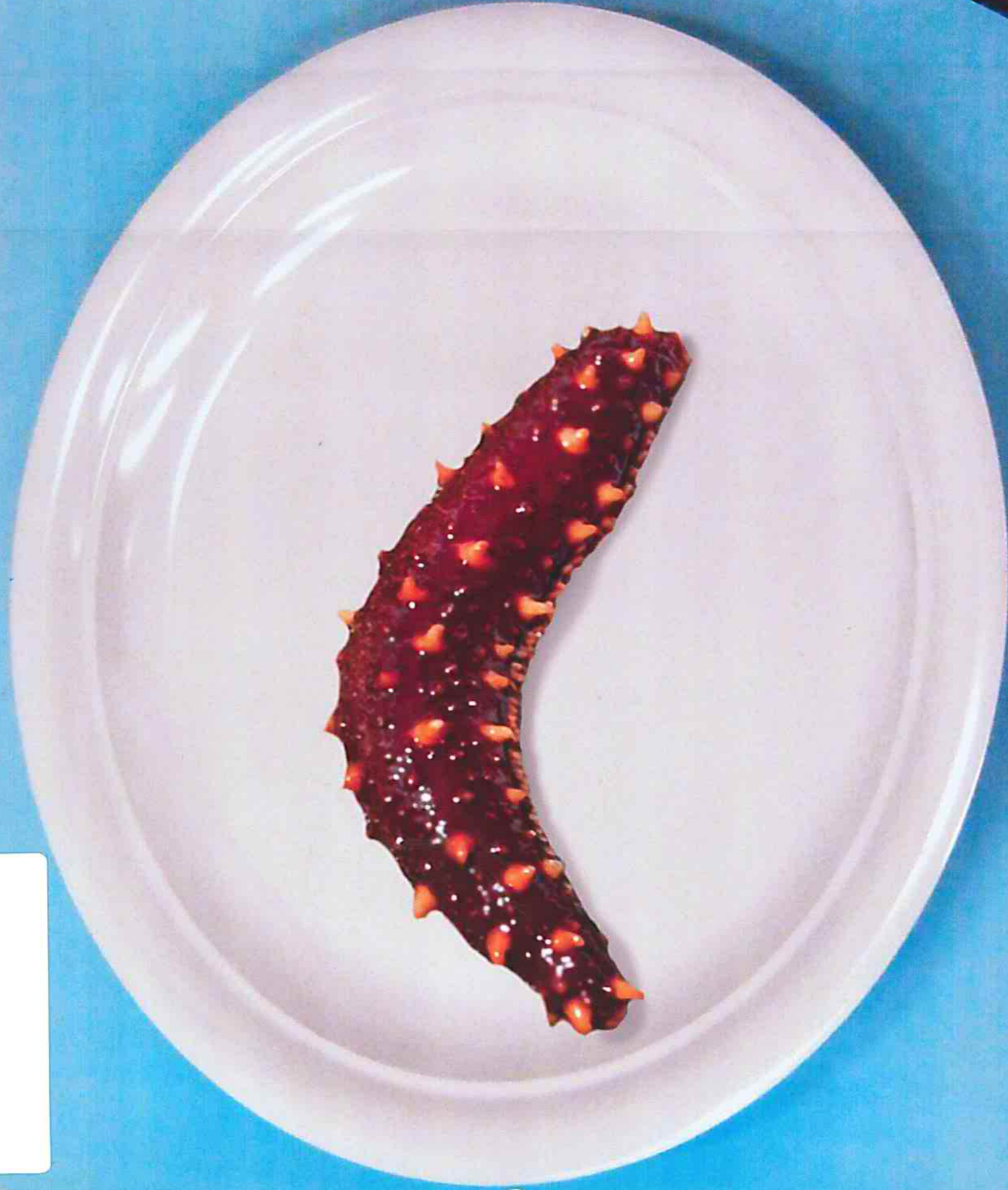


27 – Limpets

28 – Sea Urchin/Sqwi'tsi



29 – Sea Cucumber



30 – Moon Snail



31 – Abalone



32 – Chiton



33 – Barnacles





APPENDIX D – INVITATION LETTER



Lummi Nation Diet Study 2011

Dear Participant,

The Lummi Natural Resources Department is conducting a survey about the seafood eating habits of the Lummi People. With your help, the survey will play an important role in protecting the health of tribal members and the quality of our waters.

You are among the 150 Lummi tribal members that were chosen at random to be interviewed. We would appreciate your help with this project.

For this study, Frank Lawrence III, Victor Johnson, or Latisha Toby will interview you about your eating habits. Your identity and your answers will be confidential and you will be paid a \$25 honorarium after completion of the interview.

One of the interviewers will contact you within the next couple of weeks to ask you to take part in the study. Interviews will be held at a time and location that is convenient to you. If you have any questions about this survey or the interview, you can contact me or Jeremy Freimund or my staff at:

Lummi Natural Resources Department
2616 Kwina Road
Bellingham, WA 98226
Tel. M. Jefferson: 360 384-2225
Tel. J. Freimund: 360 384-2212

Your answers are extremely important for your community! Your help is greatly appreciated.

Thank you,

*Merle Jefferson, Sr., Executive Director
Lummi Natural Resources Department*



Lummi Nation Diet Study 2011

What is the survey about?

Eating fish and shellfish is the Lummi Way of Life. The Lummi People eat a lot more seafood than the general non-Indian population, but how much more is not known. This is important to know for the water quality standards of the Reservation, which are intended to protect the health of tribal members.

The water quality standards regulate how much toxic chemicals are allowed in the river and marine water of the Reservation. Because toxic chemicals in the water can be stored in the fat and meat of fish and shellfish, the more seafood people eat, the more they are in contact with toxic chemicals in the water. As a result, when people eat more fish, the water has to be cleaner.



If we know how much fish and shellfish tribal members eat, we can develop more protective water quality standards.

Who conducts the survey?

The Lummi Natural Resources Department. This survey is done by Lummi for Lummi.

What happens with my answers?

Your answers will be kept confidential as will your identity. They will be combined with the answers of the other interviews and none of your answers will be able to be tracked back to you. Your answers will only be used for this study and no other project.

How and why was I chosen?

We randomly chose male tribal members that are over 45 years old. We know that this is the group of people who eat the most fish. This way, the new water quality standards will protect everybody, no matter how much fish they eat.

What happens if I don't want to take part?

Nothing. Taking part in the survey is voluntary. It is totally up to you. But we sure would appreciate it if you would help the community by taking part in the survey!

APPENDIX E – TRAINING MANUAL

Lummi Diet Study 2011

Survey Training and Interviewer Manual

April 19, 2011

LUMMI NATURAL RESOURCES DEPARTMENT

Lead Investigator: Jeremy Freimund, P.H., Water Resources Manager

Study Manager: Monika Lange, Natural Resources Analyst

Database and Statistics: Craig Dolphin, Natural Resources Analyst

Interviewers:

Frank Lawrence III, Water Resources Planner I

Victor Johnson, GIS/Water Resources Technician III

Latisha Toby, Data Management Specialist

TRAINING OBJECTIVES

By the end of this session, participants will be able to:

1. Describe the purpose and background of the Lummi Diet Study.
2. Describe the roles and responsibilities of project participants.
3. Demonstrate understanding of the interviewing guidelines.
4. Describe how the questionnaire works and the steps needed to complete the survey.
5. Demonstrate the ability to make contact telephone calls and conduct the survey.

ITINERARY/AGENDA

1. Introduction → Review training objectives
2. Purpose and Background of the Lummi Diet Study
3. Administrative Matters

Break

4. Interviewing Guidelines
5. How the Questionnaire Works

Lunch

6. Practice Contact Calls and Interviews

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1. PURPOSE AND BACKGROUND OF THE LUMMI DIET STUDY 2011

A. Study Overview

The Lummi Diet Study will determine the average amount of seafood that is eaten by members of the Lummi Nation. The amount will be expressed in gram/day/kilogram of body weight (g/d/kg).

Fish consumption is one variable used to calculate human health-based water quality criteria that inform federal, state, and tribal Water Quality Standards (WQS), which are adopted under the Clean Water Act. The amount of fish and shellfish (seafood) consumed represents the exposure to toxins and therefore the risk to human health. The water quality standards affect how much of specific toxins can be discharged by cities and industries and are therefore typically controversial. In general, the lower the allowable amount of toxins that can be discharged, the higher the cost to remove the toxins.

The required triennial review of the Lummi WQS in 2011 will provide the opportunity to adopt Lummi-specific data that are protective of the public health of tribal members. The new data will also be used to ensure that the toxic substance criteria of the Washington State WQS protect the health of tribal members.

Until recently, the only seafood consumption rate information available were the values derived from national studies. These studies included the general population and also incorporated non-fish consumers in their calculations. The EPA default value (the EPA approves State and Tribal WQS) was 6.5g/day before 2000 and was adjusted to 17.5 g/day with 142.4 g/day for subsistence communities. Washington State is currently preparing to start the process to adjust their WQS to be more protective of populations that consume more fish than the general United States population. The current Washington State WQS are based on the 6.5g/day default fish consumption rate.

The Lummi people eat considerably more seafood than the average U.S. population. For this reason, the estimates for seafood consumption from national surveys are not applicable to either the Lummi people or to other Indian tribes of the Puget Sound area.

Other surveys of regional tribes and other subpopulations have already been conducted to collect seafood consumption data in Washington and Oregon. The results vary greatly (Table 1) and emphasize the need for Lummi-specific data. Seafood consumption studies conducted in the northwest include:

- A Fish Consumption Survey of the Tulalip and Squaxin Island Tribes of the Puget Sound Region, 1996, Toy (USDA 1990) et al.:
- Asian & Pacific Islander Seafood Consumption Study in King County, WA 1999, published in 2003 in Journal of Exposure Analysis and Environmental Epidemiology
- Fish Consumption Survey of the Suquamish Indian Tribe of the Port Madison Indian Reservation, Puget Sound Region, 2000
- A Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin, Columbia River Inter-tribal Fish Commission (CRITFC), 1994
- Swinomish Fish Consumption Survey, in progress, not published, contact: Jamie Donatuto

Table 1 - Mean, Median, 90th and 99th Percentile of Seafood Consumption for different Puget Sound Populations

	Mean g/day	median g/day	90th %tile g/day	99 th %tile g/day	mean g/kg/day	median g/kg/day	90th % g/kg/day	Average Weight kg
Tulalip	72.68	45.13	201.60	-	0.89	0.55	2.47	81.75
Squaxin Is.	72.96	42.91	192.25	-	0.89	0.52	2.35	81.88
A&PI	117.20	89.00	242.00	-	1.89	1.44	3.90	62
Suquamish	213.85	132.09	489.01	-	2.707	1.672	6.19	79
CRITFC	58.7	~30	97.2-130	389	-	-	-	per person

In 2010, Oregon State, after several years of litigation and negotiation, incorporated a 175 g/day consumption value in their updated WQS.

B. Baseline

The baseline for the study is 1985, representing a year of relative seafood abundance as documented in fishery harvest data.

The consumption rates in 1985 are by no means comparable to the heritage rates at treaty times in the 1800s and the rates of the early 1900s, but data about the relative abundance of seafood are documented for 1985 through fish harvest data. A literature review showed that meaningful data can be obtained when asking survey participants to remember their food consumption 20 years in the past.

The assumption of this study is that a 1985 baseline would result in consumption rates and associated toxic substance criteria for the WQS that are protective of the Lummi tribal members if more seafood is available in the future.

C. Selection of Participants

Previous seafood consumption surveys by other tribes indicated males aged 36 to 55 who are boat owners are the highest seafood consumers. Targeting this subpopulation should yield a protective value.

Male tribal members that were in this age group in 1985 are 61 to 80 years old now, which narrows the pool of people to choose from considerably and also brings age-related issues like memory loss into play. There is also no information available about who owned boats at that time. Based on current conditions and practices as well as descriptions of past practices by community members, the study coordinators concluded that it is very likely that male members 20 years of age and older would have been actively fishing and therefore would have had access to fish/shellfish in 1985. For this reason, 150 male tribal members living on the Reservation or Whatcom County 45 years of age and older today were randomly selected to be interviewed.

D. Funding Source

The study is funded primarily by the Agency for Toxic Substances and Disease Registration (ATSDR), a division of the Center for Disease Control (CDC). The grant (No. 1E11TS000111-01) is part of the “Community Health Projects Related to Brownfield/Land Use” project of the ATSDR. Funding for the study is also being provided by the LIBC and EPA. In addition to supporting the development of protective water quality standards, the survey results will also support a reliable risk assessment for Lummi tribal members during the evaluation of cleanup options for contaminated Brownfield/Portfield sites along Bellingham Bay.

E. Database

A database to manage the questionnaire answers was developed in-house by Natural Resource Analyst Craig Dolphin. The answers to the questionnaire recorded by the interviewers will be entered into the database by the study manager. This is one reason why the questionnaire has to be filled out correctly. Only answers in the correct format can be entered in the database and used in the statistical evaluation. Answers that do not conform to the questionnaire have to be discarded and are lost for the study.

F. Further Reading

If you are interested in the how and why the questionnaire was constructed as it is and how the list of fish and shellfish we are using was gathered, here is some further reading.

Literature Review/Reason for Questionnaire Structure:

A literature review identified general issues with long-term recall surveys and with food recall specifically. Generally, it is possible to garner useful data in recall studies with timelines as long as 50 years. In these studies, subjects from former surveys or from life-long cohort studies were re-interviewed, which allowed comparing the data recorded in the past with the present day recall. It was found that recall performance strongly depended on the specific topic. Subjects tend to remember well their body weight in the past with a correlation of 0.95 after ten years and 0.87 after 32 years (Casey, et al. 1991). Smoking habits reach a correlation of 0.84 after 32 years (Krall, Valadian and Gardner 1989); the father’s occupation was remembered with 85% accuracy after 50 years, and toilet facilities in post-war Britain with 100% accuracy (Berney and Blane 1997). Food recall fared less well with correlations as low as 0.3 (Dwyer, et al. 1989). While the perception of past consumption is influenced by current habits, it was also shown that recalled intake more accurately predicts past consumption than current intake (Dwyer and Coleman 1997). A study with Seventh-Day Adventists in California found that recall over 20 years was modest, but with exceptions: foods that had special meaning in the culture were recalled with up to 88% accuracy (Fraser, et al. 1998). Seafood plays a defining role in Lummi culture and should therefore fall in the same category. In addition, recall is more accurate for food that is eaten often and/or in a pattern, and for food that is eaten rarely but is unusual or eaten at unique or ceremonial events (Krall, Dwyer and Coleman 1988). As seafood is consumed regularly among Lummi tribal members and also served at ceremonial events, these criteria are fulfilled too. The reported

frequency of consumption was judged to also be usefully accurate in the review of other studies (Wirfaelt 1998).

Several studies explored possibilities to improve food questionnaires to aid recall and to improve the general interview efficiency. Several approaches listed in these studies were applied to the Lummi Diet Study:

- A list of food items supports recall as opposed to free-reporting where the subject has to provide all eaten food items from memory (Krall, Dwyer and Coleman 1988).
- Food models significantly help remembering portion sizes (Krall, Dwyer and Coleman 1988, Wirfaelt 1998).
- Categories of grouped food items have to be meaningful to the subjects. For instance, grouping foods by nutrient value is less helpful than grouping them by meals ('breakfast', 'lunch', etc.) Pairing certain items that are usually eaten together help cue recall (Krall, Dwyer and Coleman 1988, Krall and Dwyer 1987, Subar, et al. 1995).
- Avoid contracting several foods into one question (e.g. asking about oranges, apples, etc. is better than asking about fruit). This can lead to misunderstandings, forgotten items, and it also requires computation by the subjects. It was found to be more successful to use 'embedded' questions about certain items, where the subject was asked subsequently more details about one item. This, again, avoided computation by the subjects (Subar, et al. 1995, Krall and Dwyer 1987).
- It is difficult for most people to compute seasonal intake over one year. Questions that ask for the amount and frequency only throughout one season are easier and more accurate to answer (Subar, et al. 1995).
- Longer questions and more instruction combined with simple wording, following 'autobiographical' memory and interviewer-administered questionnaires showed survey improvements (Friedenreich 1994, Wirfaelt 1998). A longer questionnaire can actually lead to shorter interview times because of better comprehension of the questions, easier retrieval clues, and less need for computation (Subar, et al. 1995).
- It is important to pay attention to adequate units. Some food items are not commonly thought about in weight or volume measures but in counts (e.g., eggs) (Subar, et al. 1995). For the Lummi study that would pertain for instance to clams. Other items that are eaten commonly but not in a regular pattern are easier to remember in form of weekly or monthly purchases instead of single portions (Krall, Dwyer and Coleman 1988).
- Studies inquiring into events in the past, as well as studies with shorter timelines, have profited from adding biographical context to the interviews. Interviewers might provide a historical timeline of notable events for a time, which then was used to construct a personal timeline with events in the life of the subject ("lifegrid"). Other approaches include recalling the time of day an event took place or conversations around an event (Berney and Blane 1997, Wirfaelt 1998, Friedenreich 1994, Krall, Dwyer and Coleman 1988).
- Pre-testing the questionnaire in lab- and field-tests was recommended. Pre-tests allow correcting questions for comprehension and reliability (Friedenreich 1994, Subar, et al. 1995).

Seafood Species List:

In order to determine a list of finfish and shellfish that includes all the seafood consumed by Lummi tribal members, a list of seafood species culled from the previously mentioned surveys was circulated among tribal members of the Lummi Natural Resources Department, the Lummi Fisheries Commission, and the Lummi Cultural Resources Protection Commission. This review process also allowed for alternative names or more commonly used names for individual species to be determined (e.g., Sea Urchins = Sqwi'tsi, Coho Salmon = Silvers). Subsequently, four native members of the LNR staff and the Cultural Resource Department were interviewed to learn more about the fish species most commonly consumed, and about common preparation methods and situations where seafood is consumed. This aided in grouping the fish and shellfish species into meaningful categories, and determining which "embedded" follow-up questions would allow capturing the complete consumption pattern (see *Literature Review* above).

The initial test interviews revealed that individual fish and shellfish species are usually prepared with fairly specific methods, and that different parts of the fish or shellfish are consumed for different species. Member of the Lummi Nation generally smoke and can large amounts of fish, which is prepared for consumption differently and in different contexts than the fresh fish. Additionally, significant amounts of seafood are consumed at the frequent gatherings for funerals, namings, and other ceremonial events. Personal experience shows that consumption patterns at gatherings are very different from everyday meals. The above detailed literature review suggested that embedding questions about preparation methods and body parts for each species would make it easier and faster to answer the questions. Condensing questions into bigger categories in order to shorten the questionnaire does not aid memory.

The Tribal Advisory Committee, consisting of Lummi tribal members of the Natural Resources Department, the Natural Resources Commission, and the Cultural Resources Protection Commission, then reviewed the draft questionnaire to check the assumptions of the investigators.

2. ADMINISTRATIVE MATTERS

A. Materials needed for the survey

Each interviewer will be issued a filing box with the following contents:

- 50 Questionnaires
- A list of participants to contact and interview
- Log forms for each participant, checks, and a receipt book
- A booklet with photographs of the fish/shellfish in the questionnaire (Seafood ID)
- A binder with scaled photographs of the portion models
- A plate and a bowl used for the portion model photographs to have a three dimensional comparison
- Envelopes for the Informed Consent Forms
- Pens

The interviewers will need a telephone to contact participants and to set up appointments and transportation to travel to the interviews.

B. Job of the Interviewer

The job of the interviewer is to:

- Contact each person on the assigned list of participants and convince them to participate in the survey.
- Maintain a separate Interview Log for each participant.
- Make an appointment with the participant.
- Read the Informed Consent Form to participant and obtain their signature prior to starting the interview.
- Conduct the interview and fill out the questionnaire in the correct and readable form.
- Obtain a signature from the participant on the Informed Consent Form after completing the interview.
- Provide the participant with the honorarium check upon completion of the interview.
- Deliver the completed questionnaire to the study manager (Monika Lange).

C. Where to direct Questions/Complaints by the Participant

For questions by the participant that the interviewer cannot answer or for complaints about the study direct the participants to the telephone numbers, email addresses, and names listed in the consent form. Do not give out other names, email addresses or telephone numbers.

Merle Jefferson, Sr.
Executive Director
Leroy Deardorff
Environmental Director
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Chair
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Northwest Indian College
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D. Contacting Participants

The interviewer will contact each person on the provided list. Please work from the top down, not randomly. If the provided telephone number is obsolete, research the correct telephone number. Allow up to eight tries for each participant. Log the contact attempts on the provided form (Interview Log).

If an appointment gets canceled or rescheduled, follow up on appointment changes. Allow up to three appointment times (two times rescheduling) for each participant. Log the appointments on the provided form. Use a separate Interview Log for each participant.

E. Location of Interviews

The interviews are to take place at a time and place that is convenient to the participant. The options are the home of the participant, the Sam Cagey Room at the Lummi Natural Resources Department (during office hours), or another reasonable location in the vicinity of the Reservation.

F. Safety

Do not enter into a situation that feels unsafe. Several of the participants will already be familiar to you. If you make an appointment with an unknown person, use preferably a public venue and let somebody else know where you are going. Let the study manager know if you have concerns. Your safety is more important than the interview.

G. Confidentiality

You are bound by strict ethical procedures which prevent you from ever revealing what any participant has said. While the respondents will be answering many questions about their private lives, they will confide in you because the study promises strict confidentiality – this means the luxury of being totally open and honest without fear of being censured and quoted personally (e.g., about their weight, their eating habits, or where seafood was obtained from).

This is very important if respondents have questions about confidentiality. Explain to them that their names will never be connected with what they tell you.

H. Check-in

Check in with the study manager weekly and as needed to report progress and problems and to deliver completed questionnaires. Always feel free to contact Monika or Jeremy with questions.

I. Timecards

A separate timecard needs to be completed during each pay period that you work on the survey. The timecard needs to be labeled “R2” and signed by Jeremy. The timecard will have the specified charge code in it.

3. INTERVIEWING GUIDELINES

A. Goal of the Interview

The goal of the interview is to record complete and honest answers to all questions in the questionnaire in order to obtain a complete picture of the seafood consumption of the respondent in 1985.

The answers should not be biased (see next section) and the questionnaire has to be filled out so that it is readable and correct in order to be able to be entered into the database. A questionnaire that is not filled out correctly or completely has to be discarded!

B. Bias and Neutrality

An interviewer can introduce bias to an interview by influencing the answers of the participant. This happens mostly unconsciously. Both you and the participant, for instance, might feel that it is better to report higher amounts of seafood eaten and you might react to the higher amounts more encouragingly and friendly than to lower amounts. Or a participant might feel embarrassed about the high amounts of food he is eating if you appear judgmental (joke or facial expressions) and might underreport. This would be bias and is not the right way to approach the interviews.

The interviewer has to stay neutral and non-judgmental at all times.

C. Introduction and Rapport

An introductory letter about the study was already sent to the randomly selected participants.

Some general rules for introducing yourself (this applies both to the telephone contact and the actual interview):

- Know roughly what you will say before the interview. Try not to sound anxious or hesitant when you talk to the respondent. Know in advance what you want to say, but don't use a "canned" speech that will sound phony or like a telemarketer.
- Do not say more than necessary. Your introduction should be done in the shortest way possible. You should not spend much time giving explanations that the respondent did not ask for because this may cause the respondent to not want to be interviewed.
- Be business-like, yet friendly.

The word "rapport" refers to the positive relationship that develops between two people in a social or professional situation that allows good communication between them. Rapport helps to make the respondent feel comfortable, listen attentively, and give full and forthright answers. Interviewers should be keenly aware of the need to develop rapport with the respondent during the first few minutes of communication. To establish good rapport, the interviewer should give the respondent the impression that the person with whom they are speaking is:

- Professional,
- Sincere,
- Interested
- Understanding, and
- Courteous.

Do not be overly jokey or chummy during the interview. It actually distracts people from responding clearly. Studies have shown that interviewers that are business-like achieve better interviews than interviewers that are overly friendly during the interview .

Appearing professional requires that the Interviewer be confident about the purpose of the study and that he/she is NEUTRAL with respect to the subject matter. Making a professional impression depends on several things. First, the Interviewer will seem more professional if he/she conveys to the respondent that s/he is part of an important effort. A professional impression also depends on the way the interviewer looks and the interviewer's voice. The interviewer should try to listen to her/his own voice when speaking to the respondent. Many people change their voice unintentionally when they are nervous. Some individual's voices get higher when nervous; others begin to speed up their speech without realizing it. The interviewer can practice by doing practice interviews.

D. How to ask questions

Questions should always be read exactly as written. Every respondent should hear the same questions, read in exactly the same way. Even small changes to a question, magnified by the large number of respondents, could affect the final results. Questions are ordered in a certain way to obtain information in the easiest, most systematic way possible. They should always be asked in the way they are ordered in the questionnaire. If the interviewer explains that he/she is working with a standardized questionnaire, most respondents will understand and not be annoyed by some repetition.

The interviewer should read the questions in a natural conversational tone and follow the punctuation in the question. When answer categories are to be read, the interviewer should put a brief pause between the options so the respondent knows what the choices are. The way questions are read should reflect the interviewer's overall neutrality about the subject matter and encourage the respondent to talk freely about the issue. In this way, the interviewer does not unconsciously transmit his/her attitude about a question by the way the questionnaire is read. The interviewer should read the questions at a slow even pace. If the pace is not even, the message the interviewer gives to the respondent is that the questions that are read faster are less important. A slow even pace, however, should not lapse into a monotonous lifeless reading of the question.

There are some situations in the questionnaire where you do not have a script, for instance, for the food models. We will go over in the test interviews how you explain these to the respondents.

Read only those questions in the questionnaire book that are on the white background. Do not read the instructions (circle one, skip to next fish, etc.) to the participant.

E. Probing

In most interviews, you will have to ask additional questions in order to clarify the respondent's response. This is called probing. There are several issues to keep in mind when probing for clarification:

Use neutral probes that do not suggest answers. Probes are needed to get more complete and detailed answers. Probes cannot be "leading" - that is, your probe cannot suggest any particular answer to the respondent. Probes should be used whenever the respondent is hesitant to answer a question; when he seems to have trouble expressing himself; whenever there is any reason for the interviewer to think that the respondent has not given a complete report.

Many interviewers forget to use two of the most effective neutral probes: (1) silence and (2) repeating the original question. The interviewer who can wait patiently and quietly will soon find that 15 seconds of silence is more than most respondents can take, and the respondent will often expand or clarify a previously inadequate answer if you simply wait. And repeating the question is another neutral way of probing. Be sure to repeat only the question as it is written in the questionnaire.

One way to help with obtaining numbers and amounts – the majority of this questionnaire – is to ask: "Did you eat this more than 5 (10, 20) times? Did you eat it less than 30 (10, 50) times?" It is easier to compare to a concrete number than plucking it out of thin air. Use this only if the respondent has trouble to come up with a number!

F. Clarifications

There may be times when the respondents will ask the interviewer to clarify a question or a term used in a question. This is a situation in which the possibility for influencing the respondent's answer is great. In order to understand the data we collect, we need to know that every respondent heard the same question. The Interviewer should repeat the question as written, emphasizing the parts of the questions where the respondent had difficulty understanding. If the interviewer interprets the question for one respondent, he/she may change the meaning of that question so that the respondent is no longer answering the same question that other respondents are answering.

G. "Don't know" Answers

With some exceptions, responses such as "Don't know" and "Prefer not to say" are legitimate responses. However, respondents may use the "Don't know" response when avoiding a question or to fill in a silence, as well as when they really do not know the answer. It is always preferable that a respondent gives a well-founded estimate rather than merely saying "Don't know." Don't accept a "don't know" without probing at least once starting with an expectant silence.

H. Inconsistencies

The Interviewer must be alert for inconsistencies. If the respondent's answer indicates that he has forgotten or overlooked a fact that was given previously, it is important that the Interviewer does not make the respondent feel defensive. Instead, the interviewer reminds him by saying: "I want to make sure that I've recorded everything correctly. Earlier I recorded that." If the respondent wishes to change one of the responses, the interviewer can go back and enter the corrected response.

I. Explanatory Comments and Positive Reinforcement

There are a number of situations in which an interviewer may find that he or she can keep better rapport with the respondent and keep the interview flowing more smoothly if the interviewer makes explanatory comments about the task he or she is performing. This may be done when there is a silence or break in the flow of the interview. ("I have to write this down and then we will move to the next section." "The next section is about shellfish." etc.)

4. HOW THE QUESTIONNAIRE WORKS

A. Filling out the Questionnaire and Corrections

Please fill out the questionnaire in a readable and clear manner!

Most of the questionnaire asks for numbers or for choices to be circled. If you make a mistake or the respondent changes his mind, “delete” the wrong answer with a cross (x) and write the correct answer next to it or circle the right answer respectively. If you need to “delete” a box that you have crossed off, make one additional horizontal stroke through the box and mark the right box.

Times per	Week	Month	Year
3	X	X	
	X	X	

If there is the potential for confusion, please add a note for clarification (“this is the right box” with an arrow, for example).

B. Honorarium

The participants will receive a \$25 honorarium after they have completed the interview. This means they have to sign the consent form and allow you to ask all questions in the questionnaire and make an honest effort to answer the questions.

The questionnaire asks about 54 different fish and shellfish and obviously not everybody eats all of that, but the participant needs to give you the opportunity to ask about each species.

C. Introduction

The questionnaire gives you a “script” for the introduction and further explanations. Follow the text verbatim. We will have the chance to change the text after the training if the test interviews show that the text is unclear or hard to read.

D. Informed Consent Form

In the introduction you are instructed to ask the participant to sign the informed consent form. Take out the form and let the participant read the form and answer questions if necessary. If necessary, you can read the form to the participant. If he agrees to the interview, ask him to sign the form. You can only conduct the interview if the form is signed. Sign your name next to the signature of the participant (the line says “witness signature”).

E. General Data

Read the last part of the introduction and ask the questions under Descriptive Data. Circle the appropriate choices (male, female, yes, no, etc.) or record the appropriate numbers (age etc.).

The only open-ended question in the questionnaire is on page 3: “What are the reasons that you ate more or less seafood in 1985?” Record here the answer as verbatim as possible.

F. Timeline

The timeline is an exercise that will help the participant to step back in time and remember the events and daily habits in 1985. The literature review conducted for this study indicates that the timeline exercise will make it easier for the participant to remember what he ate.

Read the introduction and then take out the pre-printed timeline and read it with the participant. The timeline lists national events and events taken from the *Squol Quol* that took place in 1985. Several suggested questions are supposed to help the participant remember. You do not have to record the answers. The timeline can stay with the participant.

Keep the timeline exercise to under 10 minutes.

G. Community Gatherings

The next part of the “script” explains the process of answering the questions that follow. Only read the text on the white background to the participant. The text below that is shaded grey is only meant as a reminder to you.

The first questions concern community gatherings. With community gatherings we mean events like namings, weddings, powwows, funerals, smokehouse ceremonies, other potlucks, or the Stommish festival.

Circle the appropriate choice for the yes and no questions. If the answer is no, it looks like this:

Yes/	No
------	----

For Question S2 (“In 1985, how often did you go to community gatherings?”), enter a number in the space for “Times per” and mark the appropriate box (week, month, year).

For instance, if the participant answers “I went to 3 gatherings per month”, enter 3 in the “times per” space and cross the “month” box.

Times per	Week	Month	Year
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

For Question S5 (“If so, how much more or less did you eat at a gathering?”) you can enter $\frac{1}{4}$, $\frac{1}{2}$, 3 if the participant says they ate a quarter more, or only half as much, or three times as much. You can also enter it in percent, if that is the way the participant answers. (If it is meant to be more or less is clear from Question S4.)

H. Fish and Shellfish Questions

The fish and shellfish questions are the main part of the questionnaire. You need the portion model binder and the seafood ID booklet for this part.

First Page

The first species is Chinook salmon. Look at the booklet with the participant (Chinook is the first picture, they are numbered the same as in the questionnaire) to make sure that you are talking about the same fish. There will probably be no question about common fish like Chinook or Chums, but do it anyway to follow the protocol. The pictures will be useful for the less common fish and shellfish and where several different names exist for the same species.

Ask the first question: “Did you eat Chinook in 1985?”, and circle the appropriate answer. If the respondent answers “no”, you can skip to the next fish species.

If the respondent answers “yes”, ask the next question (“How much Chinook did you normally eat in one meal at home?”) and read all the options before the respondent answers. The options are different common ways to eat the fish (meals). Next to the meals are numbers that correspond to the portion model numbers in the binder. If the respondent says that he ate fish hash, for instance, show him the portion model 08. Ask him if he usually ate as much fish hash as shown on the picture in one sitting, or twice as much, or half as much, etc.

Below is an example for an respondent that said he ate twice the amount of fillet without skin as in the portion model, half the amount of eggs in the portion model, and three sandwiches:

	Food Model #	Amount (1/2, 1,2)
Meat/Fillet with skin	01	
Meat/Fillet without skin	01	2
Head	05	
Eggs	06	$\frac{1}{2}$
Fish Hash	08	
Sandwich	09	3
Soup/Broth/Chowder	10	
Other:		
Other:		
Other:		

If the respondent ate the fish in a different way, use the food model that comes the closest and write the number of the model in the Food Model # column and the amount in the amount column. Give a brief description in the provided box.

For some species (some clams, smelt, etc.), the pictures show a plate with several fish/clams and the respondent has the choice to say “I ate three plates of that” or “I usually ate 10 of these fish/clams”. In the amount column, it says “count” if this is an option. Write “count” or a “C” in front of the number if the respondent answers with how many fish/clams he ate.

In the example, a participant ate 5 whole fish:

	Food Model #	Amount (1/2, 1, 2, etc.) or Count of Fish for Whole Fish
Whole Fish	13	Count: 5
Eggs	07	
Other:		
Other:		
Other:		

Second Page

The next pages ask how often the respondent ate a fish/shellfish species. The questionnaire asks separately about fresh, frozen, smoked, and canned fish/shellfish. People usually eat fresh, frozen, smoked, or canned seafood at different times of the year – the freshly caught fish in season, the preserved food later. By asking separately, the respondent does not have to do the math and add it all up – this makes it easier and faster to answer even though there are more questions.

The first question on the page is “Did you eat freshly caught Chinook (fish that was not stored frozen for a longer time, or smoked, or canned)?” (The part in the parentheses is a clarification that you do not have to repeat every time, only for the first few fish.) If the respondent answers “no” to the question, you can go to the next part (frozen Chinook). If the respondent answers “yes”, ask the respondent when he ate this. If he ate it only in certain months, circle those months, otherwise circle ALL.

Example: “I ate fresh Chinook in May, June, and July”

J	F	M	A	M	J	J	A	S	O	N	D	ALL
---	---	---	---	---	---	---	---	---	---	---	---	-----

The next question asks how often the respondent ate the fresh (frozen, smoked, canned) fish/shellfish during the months they told you above. In the table, the same meals show up again that you asked the respondent about on the first page. If the respondent told you that he ate meat/fillet without skin, eggs, and sandwiches before, ask him now how many.

Make sure that the answers on page one and the following pages match. If the respondent told you on page one that he ate this much fillet and fish hash, than you need times per day, week, month, or year in the following pages for that and the other way round.

For some species, the questionnaire only asks about fresh and frozen, or fresh and smoked because that is the most common form of eating it. If the participant says he also ate it differently, go the very end of the shellfish sheets and fill out one of the blank “other” sheets.

Fill out the questions for all species in the questionnaire and take care that you don’t skip any pages. At the end of the questionnaire, there are some “Extra Sheets” in case somebody ate a fish/shellfish species that is not listed in the questionnaire.

I. Finish

Read the finish text to the respondent and ask him to confirm that the interview was finished by signing the Informed Consent Form a second time. Place the form in an envelope and seal it. Hand the participant the honorarium check and have him sign the receipt book. Finish the appointment in a friendly and courteous manner.

Turn in the questionnaire and the sealed envelope to the study manager so that the data can be entered into the data base.

THANK YOU!

5. TEST INTERVIEWS AND TELEPHONE CALLS

We will practice the interviews in the training session.